



Overland
Storage

NEO[®] 2000E/4000E Library

User Guide

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Preface

This guide provides installation instructions and operational information necessary for using the Overland Storage® NEO® 2000E or NEO 4000E tape library. It assumes you are familiar with basic functions of your computer, SCSI, Serial Attached SCSI (SAS), and Fibre Channel (FC) devices, as well as networking concepts and terminology. It also assumes you are knowledgeable about the Storage Area Network (SAN) to which your NEO E-Series library is being connected.

Product Documentation

NEO E-Series product documentation and additional literature are available online at:

<http://www.overlandstorage.com/>

Overland Technical Support

For help configuring and using your NEO E-Series library, search for help at:

<http://support.overlandstorage.com/kb/>

Our Overland Storage Technical Support staff is also available to assist you by phone at:

1.877.654.3429 (Toll-free and active only in the U.S. and Canada)

1.858.571.5555 x5 (Worldwide)

Normal business hours are from 6 A.M. through 5 P.M. (Pacific time) excluding Overland® holidays. At all other times, we will respond to technical support calls within four hours.

Technical support for our European customers is available from our United Kingdom office at:

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You can e-mail our technical support staff at techsupport@overlandstorage.com.

Downloading Firmware Updates

The latest release of the firmware for the NEO 2000E and NEO 4000E libraries can be obtained from the Overland Storage FTP site:

1. Point your browser to:
ftp://ftp.overlandstorage.com/firmware/Neo_Series/NeoE/.
2. Download and install the latest firmware file.

For more assistance, search for help at: <http://support.overlandstorage.com/kb/>.

Documentation Conventions

This User Guide employs several typographical conventions to help explain how to use your NEO 2000E or NEO 4000E library.

Convention	Description & Usage
Boldface	Words in <i>boldface</i> indicate items to select such as menu items or command buttons.
Ctrl-Alt-r	This <i>type of format</i> details the keys you press simultaneously. In this example, hold down the Ctrl and Alt keys and press the r key.
NOTE	A <i>Note</i> indicates neutral or positive information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases—for example, memory limitations or details that apply to specific program versions.
 IMPORTANT	An <i>Important</i> note is a type of note that provides information essential to the completion of a task or that can impact the product and its function.
 CAUTION	A <i>Caution</i> contains information that the user needs to know to avoid damaging or permanently deleting data or causing physical damage to the hardware or system.
 WARNING AVERTISSEMENT	A <i>Warning</i> contains information concerning personal safety. Failure to follow directions in the warning could result in bodily harm or death. Un avertissement comme celui-ci contient des informations relatives à la sécurité personnelle. Ignorer les instructions dans l'avertissement peut entraîner des lésions corporelles ou la mort.
Menu Flow Indicator (>)	Words in bold font with a greater than sign between them indicate the flow of actions to accomplish a task. For example, Setup > Passwords > User indicates that you should press the Setup button, then the Passwords button, and finally the User button to accomplish a task.

Electrostatic Discharge Information

A discharge of static electricity can damage static-sensitive devices. Proper packaging and grounding techniques are necessary precautions to prevent damage. To prevent electrostatic damage, observe the following precautions.

- Transport products in static-safe containers such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Cover the library with approved static-dissipating material.
- Use a wrist strap connected to the work surface and properly-grounded tools and equipment.
- Keep the work area free of non-conductive materials such as foam packing materials.
- Make sure you are always properly grounded when touching a static-sensitive component or assembly.
- Avoid touching pins, leads, or circuitry.



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Overview

The NEO 2000E and NEO 4000E libraries ([Figure 1-1](#)) support the latest in tape drive technology and are designed for backup operations with high-end networks and high-performance servers. The libraries also feature high availability, maximum storage density, easy serviceability, and scalability.



Figure 1-1: NEO 2000E and 4000E Libraries

This chapter describes the major components and accessories of the NEO 2000E and NEO 4000E library modules:

- [Front Panel Indicators](#)
- [Library Interfaces](#)
- [Tape Drives](#)
- [Library Magazines](#)
- [Power Supplies](#)
- [Library PCI Cards](#)
- [Robotics](#)
- [Multi-Module Library Systems](#)

Front Panel Indicators

The NEO Series Library modules front panel indicators ([Figure 1-2](#)) consist of the following:

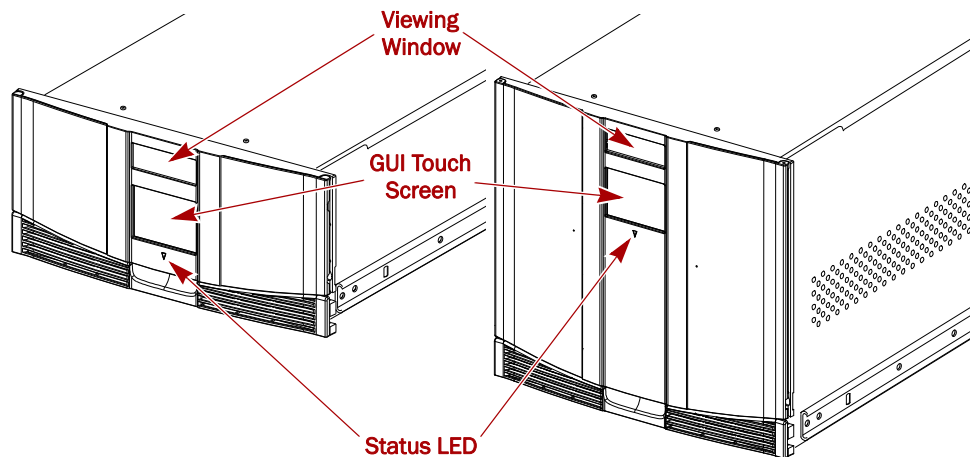


Figure 1-2: NEO Series Front Panel

- Viewing window - Lets you visually check the unit's internal operations.
- GUI touch screen - Manually operated to set up and configure the library.
- Library status LED - Displays the unit's operational status.
 - **OFF** - Power is not available at the power inlet of the library or the library is initializing.
 - **Steady amber** - Power is available. Press the GUI touch screen to power on the library.
 - **Steady amber with the power ON** - The library requires attention.
 - **Flashing amber** - Power is available, but the master switches are OFF.
 - **Steady green** - Power is ON and the library is online.
 - **Flashing green** - Power is ON and the library is offline.

Library Interfaces

The NEO Series library modules are available with the following interfaces:

- Small Computer System Interface (SCSI) – an industry standard for connecting peripheral devices and their controllers to an initiator. A SCSI interface-to-host system supports either Low Voltage Differential (LVD) or Single Ended (SE) attachment.
- Fibre Channel (FC) – a gigabit-speed network technology which transports SCSI commands over Fibre Channel networks.
- Serial Attached SCSI (SAS) – a point-to-point serial protocol that replaces parallel SCSI bus technology (multidrop) and uses the standard SCSI command set. It has no termination issues, supports up to 16,384 devices (using expanders), and eliminates clock skew.

Library Robotics Control

The library robotics control is provided through the path (bridge) of a tape drive's Automation/Drive Interface (ADI). The host manages the library using Logical Unit Number (LUN) 1 of the bridging drive's target ID. As a result, the library has the same target ID as the host bridge drive.

Virtual Interface Architecture

Virtual Interface Architecture (V.I.A.) provides you with the ability to change or add highly integrated interface options to the NEO Series library, offering tremendous flexibility and investment protection. V.I.A. is your gateway for customizing your NEO Series library modules to provide seamless integration to your storage network backup needs.

Options currently available include:

- Fibre Channel Option (FCO) - a SCSI-to-Fibre bridge used when integrating SCSI tape drives into a fibre SAN.
- Router Card - used to allow interconnectivity between modules of a multi-module system.
- Gigabit Ethernet Option (GEO) - provides Gigabit Ethernet technology that transforms the library into a high-speed network-enabled addressable device. This option is available with the iSCSI (GEOi) protocol for both the SAN and NAS environments.

Tape Drives

The NEO 2000E library supports up to two tape drives. The NEO 4000E library supports up to four tape drives. The tape drives control the host functions using different connectors for the interface protocol types and target IDs:

- SCSI I/O is handled through two VHDCI-series, 68-pin, SCSI connectors located on each tape drive ([Figure 1-3](#)). It is recommended that each SCSI drive be on it's own bus to maximize throughput.

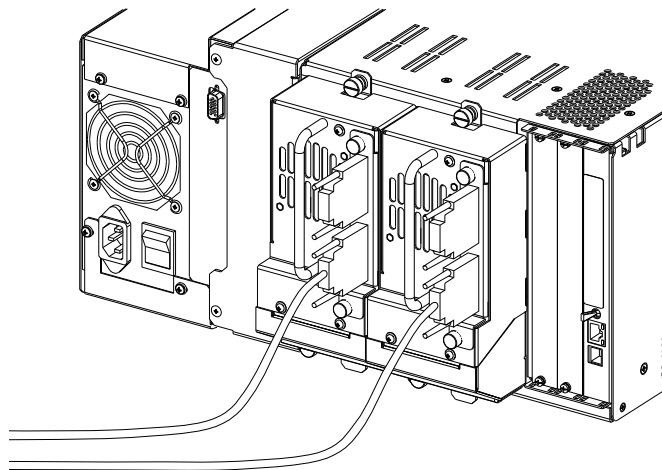


Figure 1-3: NEO 2000E with SCSI Drives

- Fibre Channel I/O is connected directly to the Fibre Channel socket on the drive (Figure 1-4).

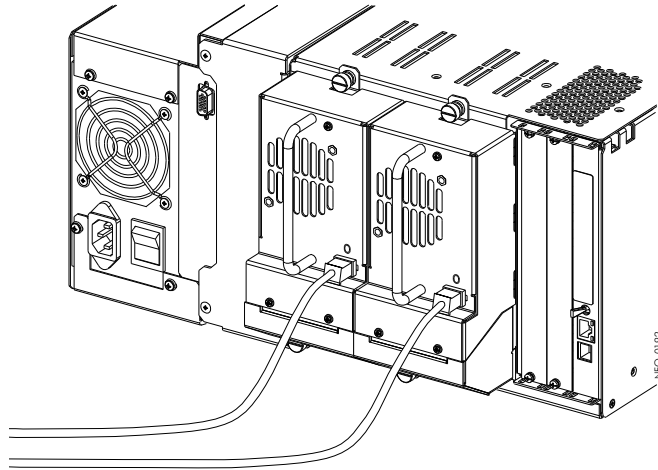


Figure 1-4: NEO 2000E with FC Drives

- SAS I/O is connected through the SAS connector on the drive using either a single cable or a multi-cable connected to a single HBA (Figure 1-5).

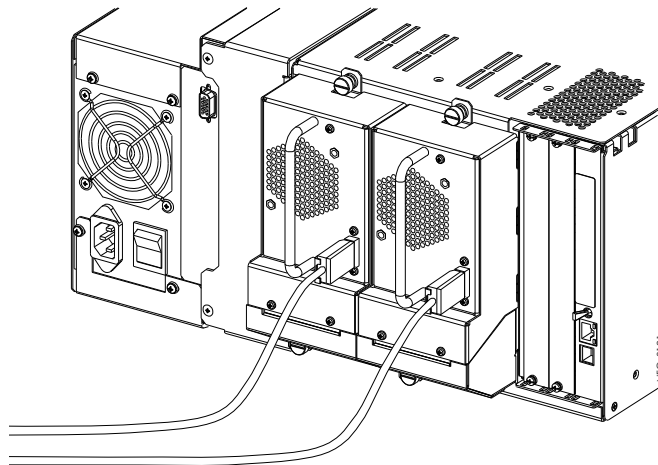


Figure 1-5: NEO 2000E with SAS Drives

Library Magazines

The NEO 2000E library contains two removable tape cartridge magazines and the NEO 4000E library contains four removable tape cartridge magazines. These magazines are accessible through the front doors. The front doors of either unit are opened using the GUI touch screen on the control panel (“[Opening the Library’s Doors](#)” on page 5-4).

Mail Slots

Looking at the front of NEO E-Series library, the left tape magazines also include a single magazine slot which can be configured as a Mail Slot. It is accessible when that magazine slot's door is open ([“Using the NEO Library Mail Slot” on page 5-6](#)).

The single/dual Mail Slot feature lets you insert or remove a single tape cartridge using the pivoting slot without interrupting library operation to remove the entire magazine.

A NEO 2000E library can be configured to have an entire left magazine (15 slots) as Mail Slots. A NEO 4000E library can be configured to have one (15 slots) or both (30 slots) left magazines as Mail Slots.

The following Mail Slot configurations are valid:

- NEO 2000E: 0, 1, or 15 Mail Slots
- NEO 4000E: 0, 1, 2, 15, or 30 Mail Slots

If entire magazines are required by the host software, you can configure the library to disable the Mail Slot feature of the left magazines. The right tape magazines contains only cartridge slots with no Mail Slot feature, so it retains its full capacity at all times.



IMPORTANT: If the partitioning option is used, the availability of Mail Slots varies based on the configuration. See [“Mail Slot Options” on page 8-3](#).

Power Supplies

Power to the libraries is supplied through AC connectors at the rear power supply panel ([Figure 1-6 on page 1-5](#)). Library power is normally controlled from the Graphical User Interface (GUI) touch screen; however, a manual power disconnect switch, located at the rear of the power supply, can also be used.

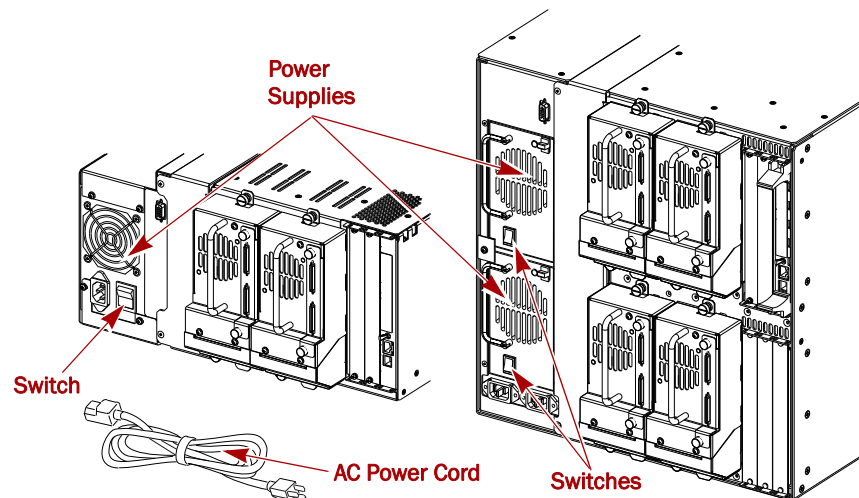


Figure 1-6: Location of Power Supplies

WARNING: The power supplies are NOT to be removed by the operator. Hazardous voltage is present in the cavity if the power cord is not removed.

AVERTISSEMENT: les sources d'alimentations ne peuvent pas être enlevé par l'opérateur. Voltage dangereux est présent dans la cavité si les cordons électriques ne sont pas retiré.

The NEO 4000E uses modular power supplies that are located at the rear of the library. These auto-ranging power supplies are capable of using any nominal AC voltage between 100 and 240 VAC power, at 50 Hz or 60 Hz. Each has an ON indicator LED that lights after touching the GUI to power ON the library. A Phillips screwdriver is required to remove a power supply from its bay on the NEO 4000E.

The two power supplies on the NEO 4000E provide redundancy for mission critical operations and avoid power interruption to the library. Both power supplies share the load under normal operating conditions. However, if one of the power supplies fails, the other will assume the full load.

Library PCI Cards

The libraries contain a rear-access card cage (Figure 1-7 and Figure 1-8 on page 1-7) with a Compact PCI backplane. This backplane contains the plug-in connectors for the library's Library Controller card and Virtual Interface Architecture (V.I.A.[™]) cards:

- Gigabit Ethernet Option (GEOi)
- Internal Router (used for multi-module systems only)
- Fibre Channel Option (FCO)

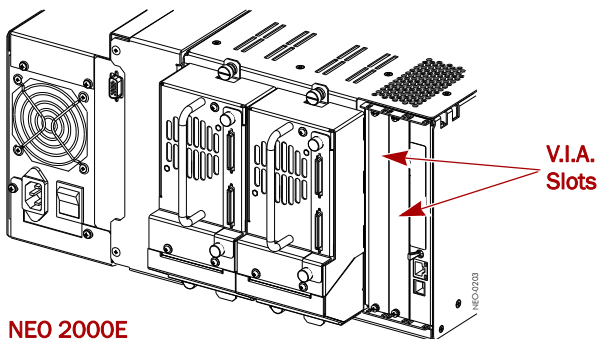


Figure 1-7: NEO 2000E Library Controller Card and PCI Slots

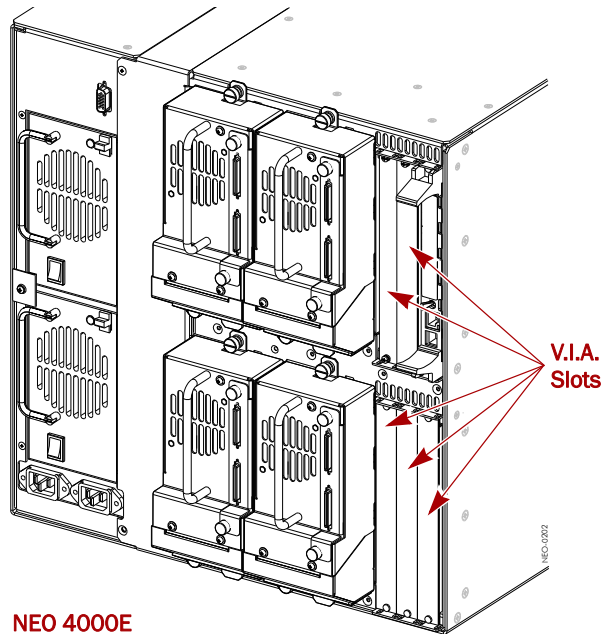


Figure 1-8: NEO 4000E Library Controller Card and PCI Slots

The Library Controller card contains a single microprocessor and associated logic devices to control all robotics operations and manage overall library functions. The library's interface is accomplished by bridging through one of the drives as LUN 1.

WebTLC[®] is a function built into the library controller card that enables you to remotely monitor and control the NEO tape library from any terminal in a local network or the Internet. For details, see [Chapter 6, "Using WebTLC Remote Access."](#)

The Library Controller card is installed in a card cage at the rear of the library which also contains the V.I.A. options.

NOTE: The Library Controller card must always be installed in the **right-most** slot in the card cage. On the NEO 4000E, it must be installed in the right-most slot of the **upper** card cage (the lower card cage connections do not support the card).

Robotics

The library module robotics consists of a cartridge shuttle, motor hardware, motor drives, and other support electronics ([Figure 1-9 on page 1-7](#)).

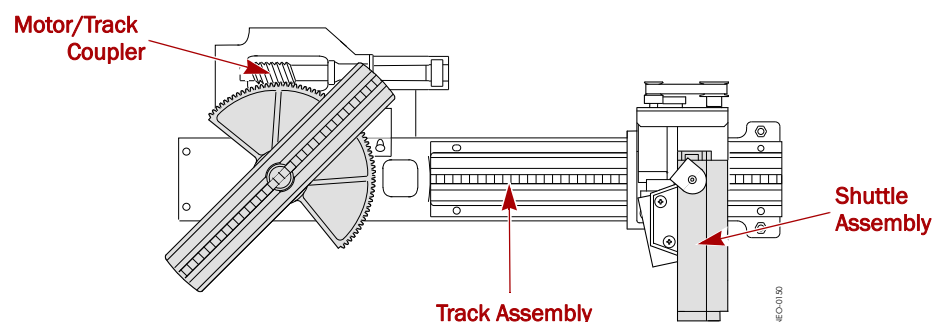


Figure 1-9: Top View of Shuttle and Track Assemblies

These robotics are capable of picking and placing tapes throughout a 180-degree arc that consists of the tape drives, tape cartridge magazines, and an optional XpressChannel.

The cartridge shuttle assembly includes a mounted bar code reader for scanning tape cartridges installed in the magazines and tape drives.

NOTE: Both a full bar code reader scan and a physical scan are conducted each time the library is initially powered up. Each time a tape magazine is exchanged or accessed, a bar code reader and physical scan is made of just that magazine.

Multi-Module Library Systems

The NEO Series library modules are modular expandable tape libraries that may be configured in a variety of module and drive combinations. The drives are mounted in a removable tape drive assembly, allowing easy user installation and removal, as well as swapping a failed drive without requiring that the library power be cycled.

NOTE: Information about installing and configuring multi-module library systems can be found in the *NEO 2000/4000 XpressChannel Installation Guide*.

The NEO Series libraries can be stacked in a scalable combination with additional NEO 2000E or NEO 4000E library modules to form a multi-module, rack-mounted configuration. Through the use of an optional rear-mounted elevator assembly, all multi-module libraries in the stack can operate together as a single library system. Stacked units are interconnected through their rear panel Ethernet connections to an optional Router V.I.A card in the Master library.

Any combination of modules, not exceeding 40U, may comprise the library system. The library system appears to the host computer system and library control software as a single library. For multi-module applications, the top library module becomes the primary Master module and all other lower libraries are Slave modules.

Each library's robotics pick and place tape cartridges into a movable shuttle in the elevator assembly allowing individual tapes to be passed up or down between the libraries contained in the multi-unit library system. Robotics access to the elevator assembly is located at the rear of the library.

NOTE: If a Slave library is powered OFF or physically removed from the library configuration during normal library operation, the elevator assembly continues to function between the Master library and any remaining Slave libraries.



This chapter explains how to install the NEO Series library modules. Sections in this chapter include:

- [First Things First—Activate Your Warranty!](#)
- [NEO 2000E or 4000E Rack Installation](#)
- [Applying Power to a NEO Library](#)

First Things First—Activate Your Warranty!

Before installing your new unit, it is **essential** that you activate your Overland warranty. Technical and warranty support are **not available** until this is done:

1. Go to the **Overland Storage** web site at:
<http://www.overlandstorage.com/>
2. Select **Service & Support > My Products**.
3. At the Site Login ([Figure 2-1](#)), enter your **e-mail address** and **password**, and click **GO**.

E-mail:
Password:
☐ Remember Me

[Forgot your password?](#) [New member?](#)

Figure 2-1: Sign-In Section

NOTE: If you are not yet a member, click “New member?” and follow the instructions given. It’s free and easy!

4. Click the **Register New Product** button.
5. Fill in the information and click **Submit**.



IMPORTANT: Within three business days after registering, you will receive an e-mail from Overland with your warranty certificate. Review it carefully and verify that the product and address information is accurate. If any errors are found, e-mail us at: warranty@overlandstorage.com.

NEO 2000E or 4000E Rack Installation

 **WARNING:** It is recommended that a mechanical lifter (or at least two people) be used to raise and align the unit to prevent injury during installation. Use care when inserting or removing a unit into or out of a rack to prevent the accidental tipping of the rack causing damage or personal injury.

 **AVERTISSEMENT:** afin d'éviter des blessures pendant l'installation, il est recommandé d'utiliser un monte-charge (ou au moins deux personnes) pour élever ou aligner l'appareil. Faites attention lorsque vous insérez ou retirez l'appareil d'un support, pour empêcher le déversement accidentel de la crémaillère causant des dommages et des blessures.

 **CAUTION:** Overland strongly recommends that you install the unit in a clean, air-conditioned environment with power conditioning and an adequately rated uninterruptible power supply (UPS). The unit is intended to be grounded.

 **IMPORTANT:** Before unpacking the unit, ensure that the area is free from conditions that cause electrostatic discharge (ESD). Discharge static electricity from your body by touching a known grounded surface. Also, avoid touching pins, leads, or circuitry.

Using the *NEO 2000E/4000E Quick Start Guide* that came in the Accessory Kit, install the unit in the rack as follows:

1. Install the Rail Kit into a four-post, 32-inch depth, EIA-310 rack.
2. Insert the library into the rack.
3. Connect the network and data (SCSI, FC, or SAS) cables.
4. Attach the power cords.

NOTE: To access online versions of the NEO 2000E/4000E documentation, visit the Overland Storage [NEO Downloads and FAQs](#) web site.

Applying Power to a NEO Library

Use the following instructions to apply power to your library module:

NOTE: NEO 2000E/4000E libraries include an Auto-Power On option. When enabled, the library powers up as soon as power is applied. If power was turned off from the front panel, touch the GUI touch screen to turn on the power.

1. Connect the supplied power cords to AC receptacles located on the back of the library module ([Figure 2-2 on page 2-3](#)).

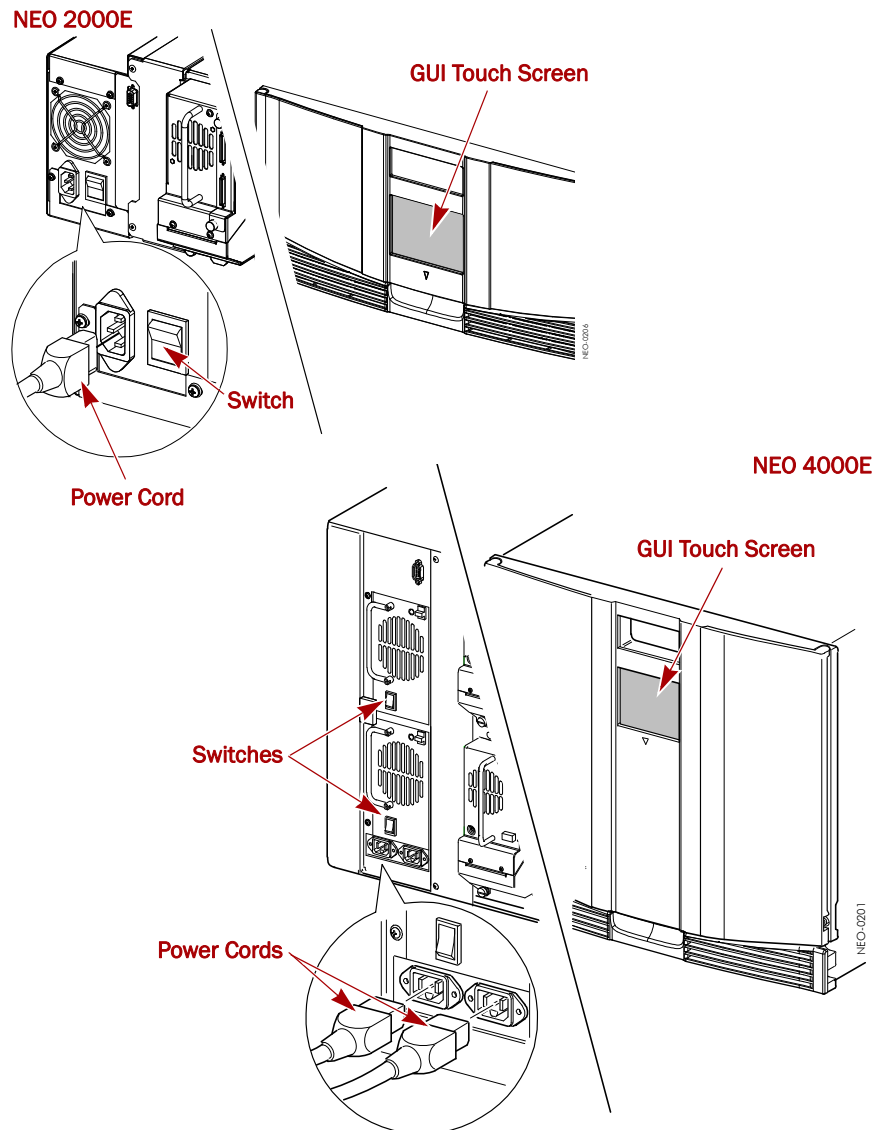


Figure 2-2: Applying Power to the NEO Series Library Modules

2. Toggle the power switches to the ON position (“|”).
3. If necessary, touch the **GUI touch screen** to activate the display and turn the library module ON.

For information on powering down the NEO library, see [“Powering Down the Library”](#) on page 5-11.



This chapter explains how to initially configure a NEO 2000E/4000E tape library.

For most applications you do not have to change the factory default settings; however, if you do need to change a configuration setting, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized Overland service provider.

Configuration settings that are commonly modified include:

- [Changing the SCSI ID Settings](#) (if applicable)
- [Configuring a Fibre Channel Drive](#) (if applicable)
- [Setting Up Reserved Slots](#)
- [Setting Up Remote Configuration with WebTLC](#)
- [Configuring E-Mail Communications](#)

For detailed information on configuring additional components in your NEO Series library, see [Chapter 5, “Functions for Daily Operations.”](#)

You can modify library configuration settings using the GUI touch screen on the front of the library or via the web-based configuration utility, WebTLC. For a complete description of the touch screen GUI operations see [Chapter 4, “Using the Touch Screen GUI.”](#) For information on using the web-based configuration utility, see [Chapter 6, “Using WebTLC Remote Access.”](#)

Changing the SCSI ID Settings

Based on your SCSI bus configuration, it may be necessary to change the **SCSI IDs** of your drives:

1. From the Default screen ([Figure 3-1 on page 3-2](#)), press **Menu**.



Figure 3-1: NEO 4000E Default screen

2. In the Edit Options area (Figure 3-2), press **SCSI/FC/SAS**.

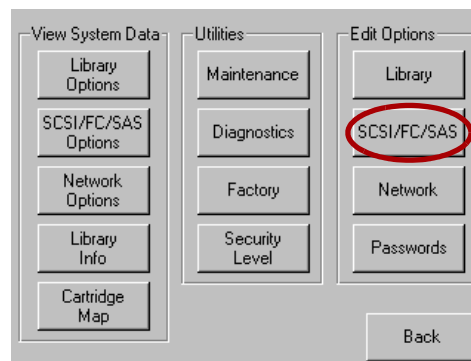


Figure 3-2: NEO Series Menu Screen

NOTE: If a Service password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

3. At the SCSI screen (Figure 3-3), press the virtual button to the right of the tape drive you are changing.

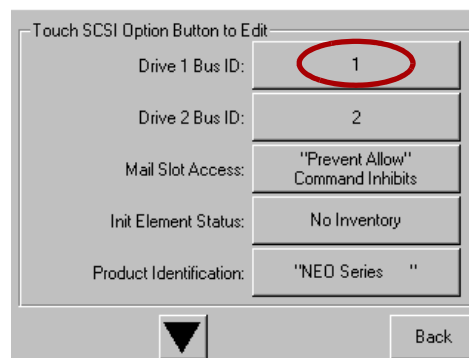


Figure 3-3: SCSI Initial Edit Screen

4. At the Bus ID edit screen (Figure 3-4 on page 3-3), press one of the **SCSI ID number** buttons for the new ID and press **Save**.

NOTE: Bus ID number 7 is usually reserved for the Host Bus Adapter (HBA).

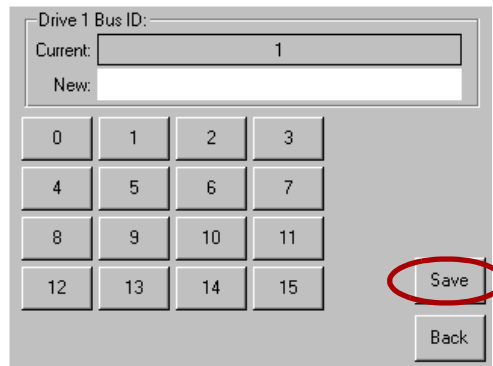


Figure 3-4: Bus ID Edit Screen

5. At the Confirm dialog box (Figure 3-5), press either **OK** to accept (or Cancel to discard).

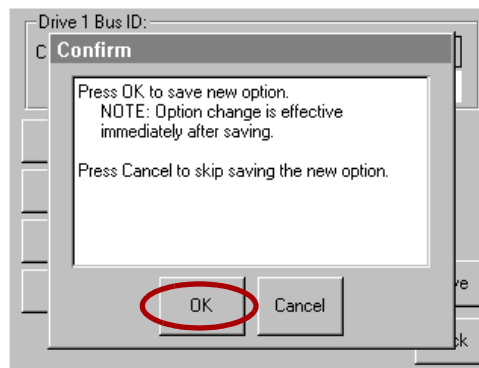


Figure 3-5: Bus ID Confirmation Dialog Box

NOTE: If you entered an ID number that is already assigned within the NEO library, you are prompted to accept or cancel the duplication. Numbers outside the library are not checked, such as Bus ID 7 for the Host Bus Adapter (HBA).

The newly selected SCSI ID flashes for a few seconds while the drive is being updated, then stops indicating that the operation is complete.

6. Repeat [Steps 2–5](#) for the **other drives**.
7. Press **Back** twice to return to the default screen.

Setting Up Reserved Slots

Use this option to remove up to 15 tape cartridge slots from storage use. This is necessary if one or more tape cartridge slot is being dedicated as a cleaning slot or if your software license limits you to a number of slots less than the total available in your NEO library.

How Reserved Slots Are Numbered

Standard tape cartridge slots are numbered from the front of the magazine to the rear, see [Figure 3-6 on page 3-4](#) and [Figure 3-7 on page 3-5](#). If you reserve one slot, it becomes Reserved Slot #1 in the last slot of the magazine. Additional reserved slots continue in this rear-to-front pattern.

If your software license limits you to less than the full-magazine capacity, Reserved Slot #1 is always the slot following the last unreserved data tape cartridge.

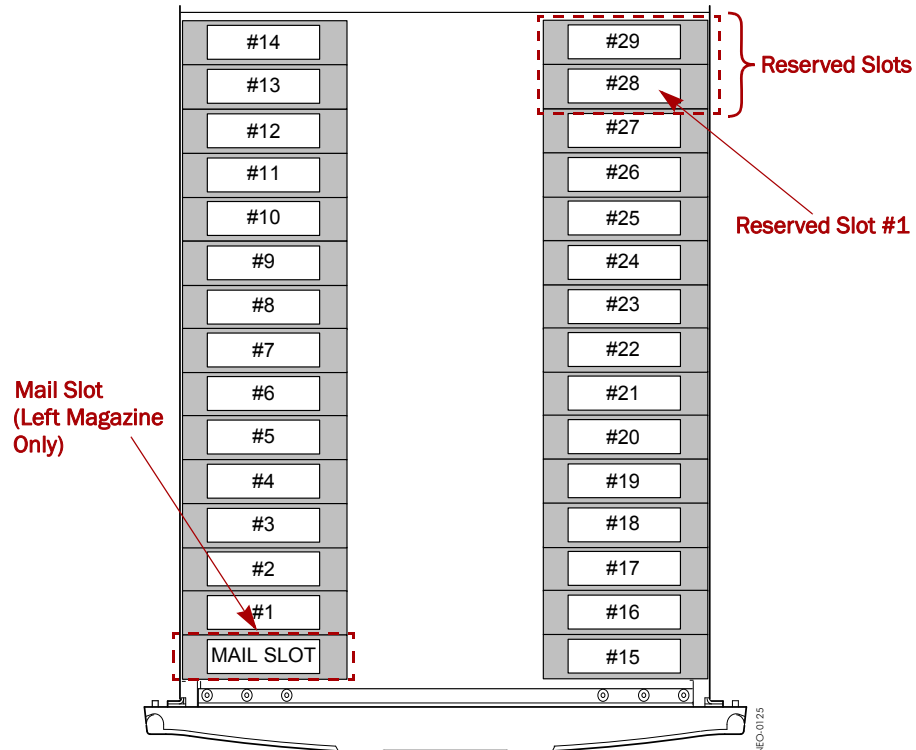


Figure 3-6: NEO 2000E Magazine Slot Numbering

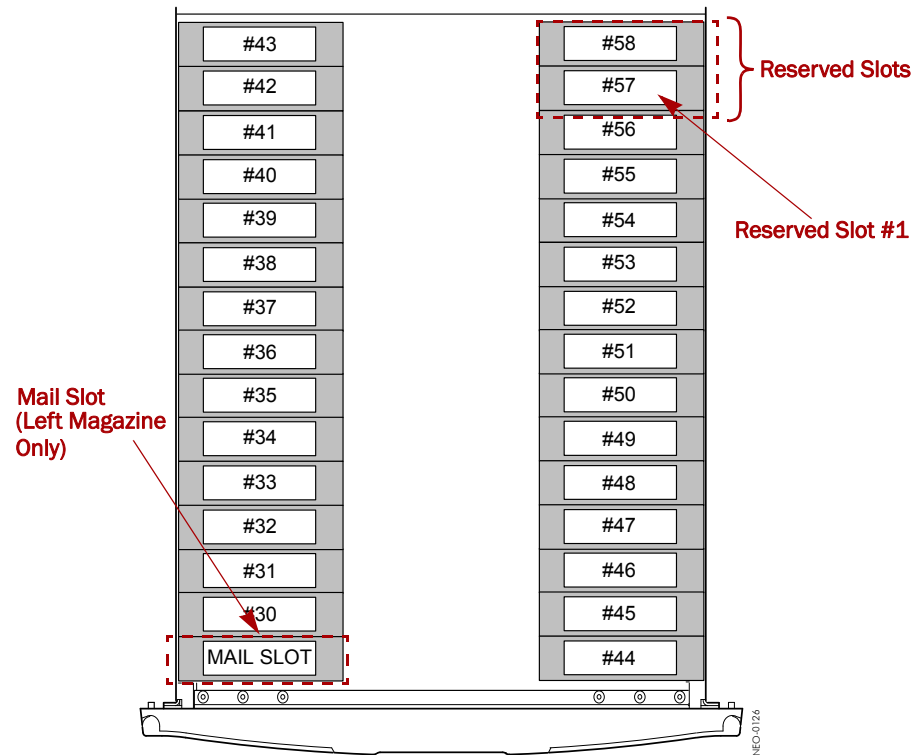


Figure 3-7: NEO 4000E Lower Magazine Slot Numbering

To reserve one or more slots:

1. At the Default GUI screen, press **Menu > Library**.
2. On the Library options screen, press the **Total Reserved Slots** button (Figure 3-8).

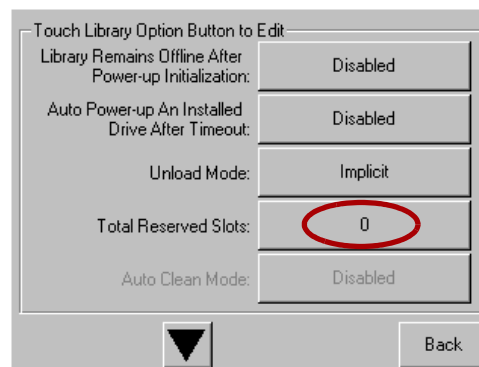


Figure 3-8: Total Reserved Slots Screen

3. Use the keypad to enter the number of slots you want to reserve, and press **Save** (Figure 3-9).

Figure 3-9: Reserved Slots Numeric Keypad

4. At the confirmation screen (Figure 3-10), press **OK**.

Figure 3-10: Total Reserved Slots Confirmation Screen

The library reboots automatically to activate the reserved slots.

5. To view the change, go back to the Default screen and press **Status**.

Configuring a Fibre Channel Drive

In most cases, you can use the default configuration values for Fibre Channel drives. However, if it becomes necessary to change the default values, the editable values are:

- Port *n* Control
- Port *n* Loop ID
- World Wide Port *n* Name
- World Wide Node Name
- Topology
- Speed

Table 3-1, “NEO Series Library Fibre Channel Editable Drive Options,” on page 3-8 details the available Fibre Channel settings.

1. At the Default GUI screen, press **Menu > SCSI/FC/SAS**.

NOTE: If a Service password is enabled, the validate password screen is displayed. Enter the correct password and press **Validate**.

2. At the FC edit screen (Figure 3-11), press **Set Values** for the tape drive you are changing.

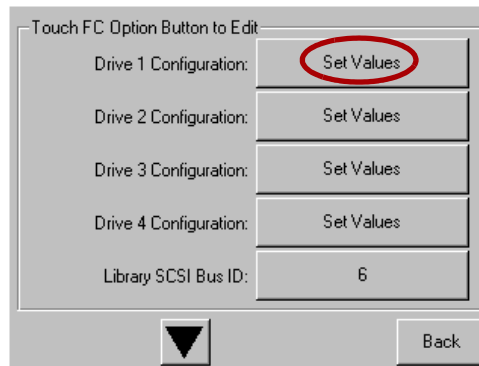


Figure 3-11: FC Initial Screen (Edit Options)

3. At the Set Values edit screen (Figure 3-12), make all the necessary changes by pressing the appropriate buttons and entering the new data. Press the **down arrow key (▼)** to access the second screen.

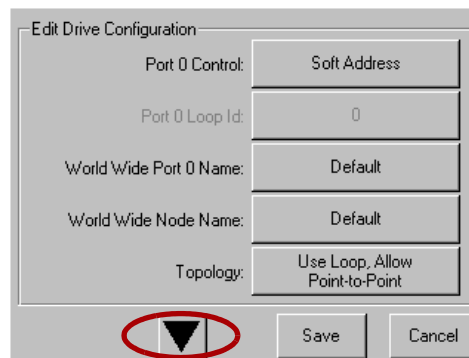


Figure 3-12: Edit FC Drive Configuration (Set Values) Screen

4. Press **Save**.
A dialog box appears stating the configuration is being updated, and then you are automatically returned to the FC edit screen.
5. Press **Back** twice to return to the Default GUI screen.

Table 3-1 describes the editable options for NEO Series Fibre Channel drives.

Table 3-1: NEO Series Library Fibre Channel Editable Drive Options

Option	Description
Drive <i>n</i> Configuration (FC drives installed)	Press Set Values to display additional screens of editable data for Fibre Channel drives.
Port 0 Control	Specifies the method for setting the AL-PA. The settings are Disable , Soft Address , and Hard Address . When Hard Address is selected, the Port 0 ID button is enabled to select a valid Loop ID. Default: Soft Address
Port 0 Loop ID	Specifies the Loop ID that the tape drive uses to determine the AL-PA for Port 0. The possible settings are 1 to 125. NOTE: This option requires Hard Address to be selected in the Port 0 Control option. Default: 1
World Wide Port 0 Name	Select either a Default or Custom WWPN. The default setting uses the factory-configured WWPN while Custom allows you to create a unique name for Port 0. Default: Default
World Wide Node Name	Select either a Default or Custom WWNN. The default setting uses the factory-configured WWNN while Custom allows you to create a unique name for the device. Default: Default
Topology	Specifies the topology used by the Fibre Channel ports. The four options are Use Loop , Allow Point-to-Point , Use Point-to-Point , Allow Loop , Force Loop , or Force Point-to-Point . Default: Use Loop, Allow Point-to-Point.
Speed	Sets the link speed in gigabits used by the Fibre Channel ports. The options are Auto , 1 Gb/sec. , 2 Gb/sec. , 4 Gb/sec. , or 8 Gb/sec (depending on the drives installed). In Auto mode, the drive negotiates the speed with the host. Default: Auto

Setting Up Remote Configuration with WebTLC

The NEO 2000E/4000E WebTLC utility is an interface built into the NEO 2000E/4000E tape library that provides remote access to and configuration of the library through an Ethernet port.

WebTLC hosts a dedicated, protected web site that can be accessed by a web browser using the IP address assigned to the NEO 2000E/4000E tape library.

Access to WebTLC is available either from a PC connected to your network or via the World Wide Web using the default HTTP port 80.

The NEO 2000E and NEO 4000E libraries come preconfigured with the Dynamic Host Configuration Protocol (DHCP). To remotely access the unit for additional configuration, open your browser using that address assigned to the library. This automatically launches the WebTLC utility.

For details on setting up remote access to your NEO Series library, see [“WebTLC IP Address Configuration” on page 6-2](#).

Configuring E-Mail Communications

Before options that send e-mails can be used, the network settings must be configured and a SMTP Server address entered.

SMTP Server/E-Mail Configuration

1. From a computer connected to the same network as the NEO library, open a browser and connect to the WebTLC IP address.
2. At the Login screen, enter the default password “2” and click **Login**.
3. In the Navigation Bar at the top, click **Setup**.
4. Click **Notifications**, then click **Confirm** at the Offline message.
5. In the E-Mail Addresses section ([Figure 3-13](#)), enter the server and e-mail **data** for your network:

Figure 3-13: E-Mail Addresses Notification Setup Screen

- a. Enter the **Server Address**.
- b. Enter up to four **E-Mail Addresses** to receive e-mail event messages.
- c. Change the default **Return Address** (webtlc@neo) for the event messages to a real e-mail address.

NOTE: The webtlc@neo address is placeholder and not meant to be used.

6. Click **Submit** at the bottom of the screen (you may have to scroll down). The information is updated immediately.
7. Click **Logout** next to the Navigation Bar.



CHAPTER 4

Using the Touch Screen GUI

The touch screen Graphical User Interface (GUI) on the front of the NEO 2000E and NEO 4000E library (Figure 4-1) provides an easy way to directly communicate with the library.

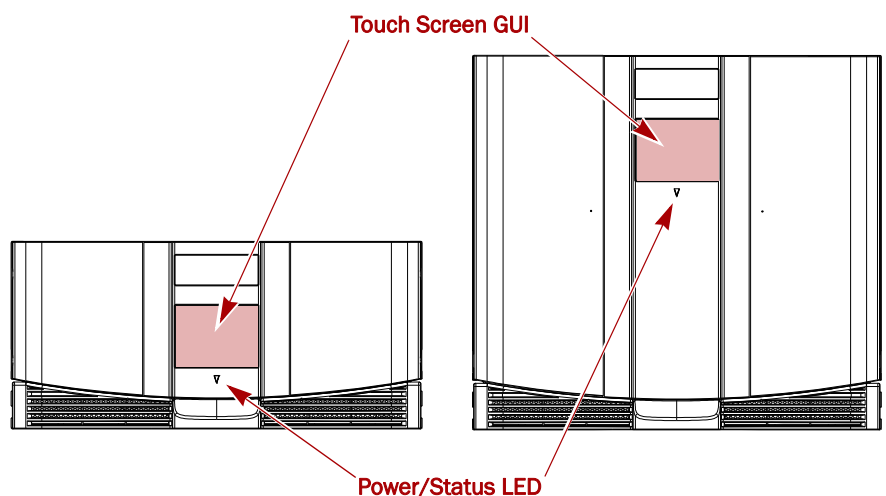


Figure 4-1: Touch Screen GUI Locations

By gently pressing the virtual buttons, you can select menus and options to view or change library settings.

NOTE: Refer to Chapter 6, “Using WebTLC Remote Access” for ways to communicate with and configure the library from a web browser.

You may find that the touch screen GUI needs to be calibrated for accurate touch response. For recalibration information, see “[Calibrating the Touch Screen](#)” on page 4-18.

Overview

The touch screen GUI is a 3.75" x 2.875" (9.5cm x 7.3cm) pressure-sensitive grayscale screen. It provides text and graphic messages and, through the use of virtual buttons and sliders, allows users to make changes to current library settings.

Some features are comprised of multiple screens. To move between these screens, use the up (▲) or down (▼) arrows. The Back button returns you to the previous screen.

For most applications, there is no need to change the factory default settings. However, if changes are needed, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized service provider.

Default screen

The Default screen appears 50 seconds after Power-On Self Test (POST) diagnostics begins or when you press the Continue button (Figure 4-2).



Figure 4-2: Default screen (NEO 4000E)

NOTE: Though visible, this screen is not fully functional until the POST process completes. During POST, you can only access the Network Options and Library Information in the View System Data area.

From this screen, you can access the options, functions, informational screens, and screen contrast adjustments of the NEO Series library. You can also initiate a controlled library shutdown. Tapping the logo area turns on the internal light for 30 seconds.

Default GUI Screen Options

The Default GUI screen (Figure 4-3 on page 4-2) consists of ten buttons surrounding a logo splash screen. The buttons provide the primary links to the other key functions (Table 4-1).



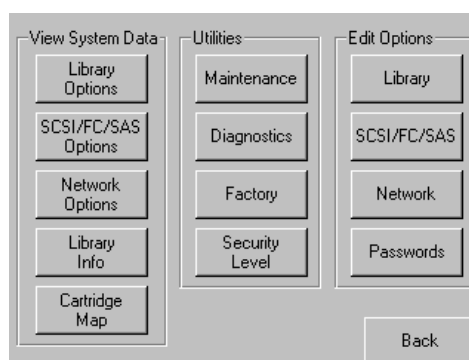
Figure 4-3: Default screen (NEO 2000E)

Table 4-1: Options Available from the Default screen

Virtual Button	Result
Menu	Shows the Menu screen.
Online / Offline	Switches the library between online and offline.
Status	Displays the Library Status screen.
Power	Starts a controlled power-down.
Mail Slot Access	Takes you to the Mail Slot Access screen.
Magazine Access	Shows the Magazine Access screen.
Move Media	Takes you to the Move Media screen.
“O” Logo	Displays the Technical Support screen.
Up & Down Arrows	Adjusts the contrast of the screen.

Accessing the Menu Screen

When you press **Menu** from the Default screen, the Menu screen is displayed ([Figure 4-4](#)). The Menu screen provides access to most of the library’s functions.

**Figure 4-4: Menu Screen**

Refer to [“Menu Screen Options”](#) on [page 4-9](#) for complete details for all the options shown on the screen.

Setting the Library to Online or Offline

Pressing the **Online/Offline** button switches the library between online and offline status. The button name displays the current status of the library. It can be password protected using User Level 2.

NOTE: By default, the library automatically is brought **online** after powering it up. When offline, the front panel Status LED blinks.

When offline, the tape drives continue to function and record without interruption. However, any attempt to operate the robotics will result in a “Not Ready” message to the host.

Viewing Library Status Information

Selecting the **Status** option from the Default screen displays the library Status screen (Figure 4-5).

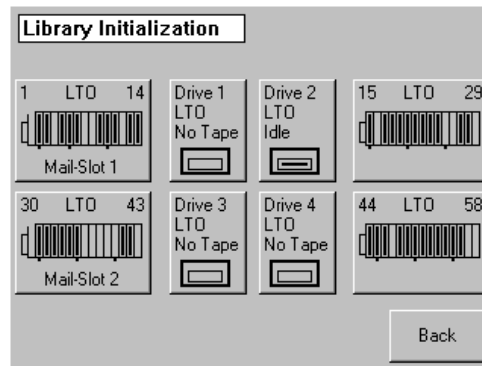


Figure 4-5: NEO 4000E Status Screen

The Status screen displays buttons to access tape drive and media information. These buttons show some of the following information:

- (Tape) Drive buttons
 - Active drives
 - Drive type
 - Physical drive status
- Mail Slots and (Media) Magazine buttons
 - Configuration
 - Cartridges loaded

Pressing the appropriate button displays a detailed status screen (Figure 4-6).

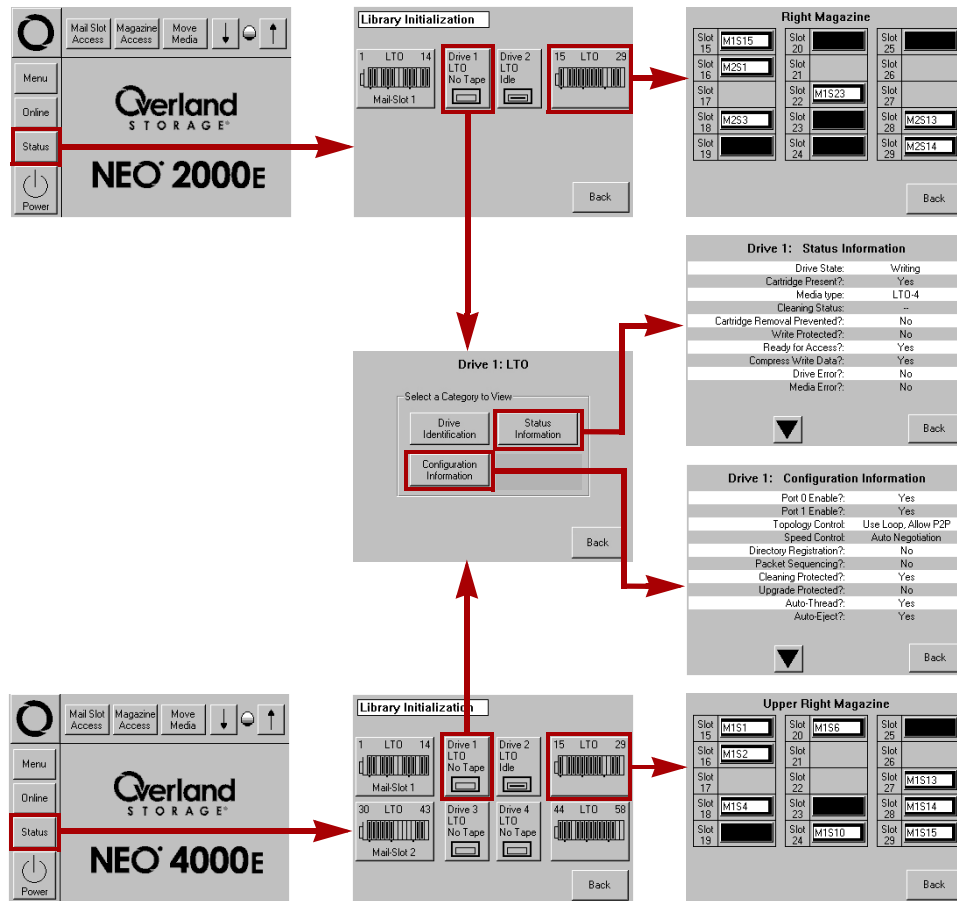


Figure 4-6: Status Screen Examples

Mail Slot Access

Pressing the **Mail Slot Access** button displays the Mail Slot Access screen. This screen lets you gain Mail Slot (or Mail Magazine) access without taking the library offline. It can be password protected using User Level 1.

NEO 2000E

The left door is automatically unlatched when this screen is accessed. The screen icon shows the slot unlocked (Figure 4-7).

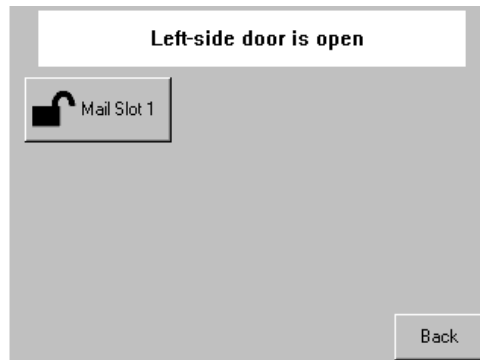


Figure 4-7: NEO 2000E Mail Slot Access Screen

Closing the library door relocks the Mail Slot and returns you to the Default screen. The Mail Slot is inventoried.

NEO 4000E

Initially accessing the Mail Slot Access on the NEO 4000E screen causes no physical change to the library. When you press either **Mail Slot** button, the left door is automatically unlatched along with that particular Mail Slot (Figure 4-8). Pressing the other button unlocks the second Mail Slot.

NOTE: A mechanical lock holds each Mail Slot closed until its button is pressed.

Closing the library door relocks the magazines, returns you to the Default screen.

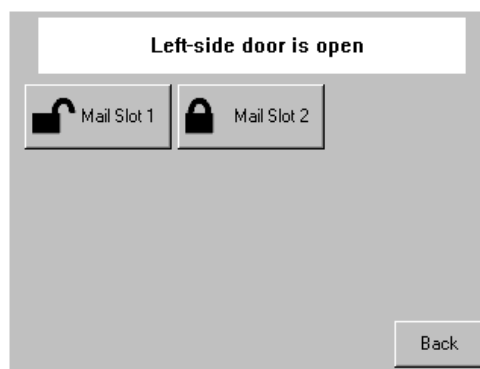


Figure 4-8: NEO 4000E Mail Slot Access Screen

Magazine Access



CAUTION: If you press Magazine Access, the library is automatically and immediately taken **offline**. Once the action is completed, the library automatically goes back online.

Pressing the **Magazine Access** button displays the Magazine Access screen (Figure 4-9). This screen lets you deactivate the solenoid locks that secure the magazines so they can be removed. It can be password protected using User Level 2.

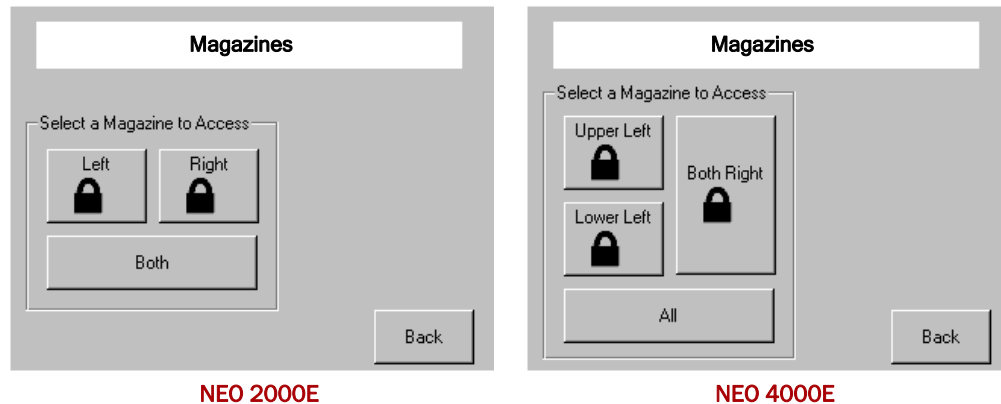


Figure 4-9: Magazine Access Screens

Access to the magazines is gained by pressing either a specific magazine button or the **Both** or **All** button. The appropriate door automatically opens. On the NEO 4000E, if a left magazine is selected, only the appropriate magazine is unlocked.

Closing the library door relocks the magazines, returns you to the Default screen, and flashes the Status LED while the magazine slots are inventoried.

Moving Media

CAUTION: If you press Moving Media, the library is automatically and immediately taken **offline**. Once the action is completed, the library automatically goes back online.

The Move Media command in the Library's touch screen GUI provides the means to move cartridges from one location to another inside the library without physically touching them:

1. At the Default screen, press **Move Media** (Figure 4-10).



Figure 4-10: NEO 4000E Default screen

NOTE: If a User Level 2 password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

2. If the library is partitioned, you are prompted to select the partition for the move operation (Figure 4-11) (P1, P2, etc.), then press **OK**.

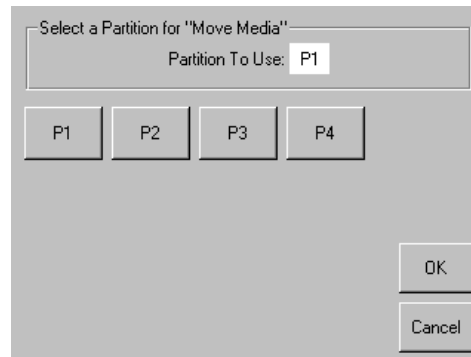


Figure 4-11: Select Partition for the Move Operation (4000E)

3. Use the Move Media dialog box (Figure 4-12) to select the Source and Destination:

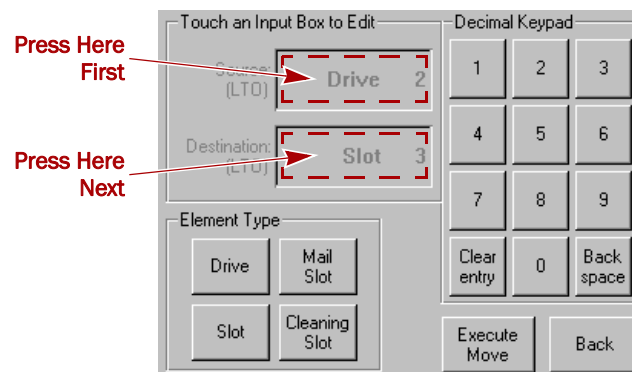


Figure 4-12: Move Media Dialog Box

NOTE: You can cancel the move operation at any time by pressing the **Back** button (which returns you to the Default screen). If a slot number is grayed out, that slot is not available. Clear your entry and enter a different slot number.

- a. Touch the **Source** input box to activate it.
- b. Select the Source Element Type (**Drive**, **Slot**, **Mail Slot**, or **Cleaning Slot**) by pressing the appropriate button on the lower left.

NOTE: The **Cleaning Slot** button is displayed only when one or more Reserved slots have been configured for the library.

- c. Enter the Source **element number** using the decimal keypad.
You can also repeatedly press the appropriate Source Element Type button to cycle through all possible options (slots or drives with a tape in them).

NOTE: If you use the keypad to enter a slot number and the number is shown grayed out, that slot is not available. Clear your entry and enter a different number.

- d. Touch the **Destination** input box to activate it.
- e. Select the **Destination Element Type** by pressing the appropriate button.

- f. Enter the Destination **element number** using the decimal keypad.
You can also repeatedly press the appropriate Destination Element Type button to cycle through all possible options (empty slots or drives).

4. Press **Execute Move**.

The tape cartridge is moved to the specified location. You are automatically returned to the Default screen when the operation is done.

Contacting Technical Support

Pressing the Overland logo in the top left corner of the Default screen displays Overland-specific technical support information (Figure 4-13).



Figure 4-13: Technical Support Screen

If you are having difficulty contacting your local service provider, contact Overland Storage directly. For further assistance, you can also access Overland's web site at <http://www.overlandstorage.com>.

Adjusting the Contrast of the GUI Screens

If the contrast of the NEO library's GUI display screens are not optimal for visibility, you can adjust the screen contrast as desired. Pressing the up arrow (▲) and down arrow (▼) in the upper right corner of the Default screen *temporarily* increases or decreases the contrast of the LCD display. There are 31 incremental steps of contrast to choose from.



To change the setting on a permanent basis, go to **Menu > Library > LCD Contrast Adjust** (see "LCD Contrast Adjust" on page 4-22).

Menu Screen Options

Selecting **Menu** from the Default GUI screen displays the main Menu screen of the top-level features that let you view, configure, and edit various library settings and configurations (Figure 4-14).

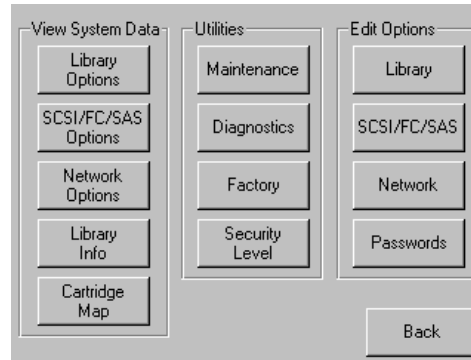


Figure 4-14: Menu Screen

CAUTION: If you press Diagnostics, Factory, or any of the Edit Options buttons, the library is automatically and immediately taken **offline**. Once the action is completed, the library automatically goes back online.

The Menu screen is divided into three vertical sections:

- View System Data—[Library Options](#), [SCSI/FC/SAS Options](#), [Network Options](#), [Library Info](#), and [Cartridge Map](#)
- Utilities—[Maintenance](#), [Diagnostics](#), [Factory](#) (access), and [Security Level](#) for authorized service technicians



IMPORTANT: The buttons in the Utilities section are intended for use by Overland-Authorized Service Technicians and, with few exceptions, are not recommended for access by end users.

- Edit Options—[Library](#), [SCSI/FC/SAS](#), [Network](#), and [Passwords](#)

Pressing the **Back** button returns you to the Default screen.

Viewing Library Options

The library Options button provides read-only access to the library settings.

To view the library's settings, press **Menu > Library Options** ([Figure 4-15](#)).

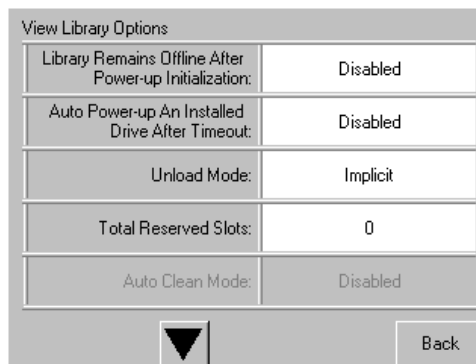


Figure 4-15: View Library Options Initial Screen

Use the ▲ or ▼ arrows to shift between multiple option screens. No modifications can be made on these screens. Refer to [“Editing the Library Options” on page 4-19](#) for information on changing these settings.

Viewing SCSI/FC/SAS Options

NOTE: The options displayed vary based on the type of drives installed in the library. Because SAS drives have no customer adjustable settings, they are grayed-out.

You can use the SCSI/FC/SAS Options button to provide read-only access to the SCSI, SAS, or Fibre Channel drive settings.

To view the drive settings, go to **Menu > SCSI/FC/SAS Options** (Figure 4-16).

View SCSI Options	
Drive 1 Bus ID:	1
Drive 2 Bus ID:	2
Drive 3 Bus ID:	3
Drive 4 Bus ID:	4
Mail Slot Access:	"Prevent Allow" Command Inhibits

At the bottom of the screen, there is a downward arrow button and a "Back" button.

Figure 4-16: View SCSI/FC/SAS Options Initial Screen (SCSI 4000E)

Use the ▲ or ▼ arrows to move between screens. For libraries with Fibre Channel, pressing the View Values field for a particular drive displays a second set of data screens.

No modifications can be made on these screens. Refer to [“Modifying the SCSI/FC/SAS Options” on page 4-24](#) for information on changing these settings.

Viewing Network Options

The Network Options button in the View System Data area provides read-only access to the network settings. To view the library's network settings, press **Menu > Network Options** (Figure 4-17).

The network options consists of three screens of information showing 11 options.

View Network Options	
IP Address Determination:	User Specified IP Address
IP Address:	10.1.10.98
IP Mask:	255.255.0.0
IP Gateway:	10.1.8.99
DNS Server:	10.1.8.14

At the bottom of the screen, there is a downward arrow button and a "Back" button.

Figure 4-17: View Network Options Initial Screen

Use the ▲ or ▼ arrows to shift between screens. No modifications can be made on these screens. Refer to [“Editing the Network Options” on page 4-28](#) for information on changing these settings.

Viewing Library Info

The Library Info (Information) button in the View System Data area provides read-only access to the general information about the NEO Series library.

To view the library information, go to **Menu > Library Info** ([Figure 4-18](#)).

Miscellaneous Library Info	
Firmware Revision:	1.22
Boot Code Revision:	2
Hardware Revision:	3
Local IP Address:	10.1.25.78
Ethernet Address:	00900D112233
Serial Number:	2B12345678
Partitioning Enable Key:	1122-1223-2233-2256- 1234-2345-0DA8-BECE
Power-On Hours:	2568
Back	

Figure 4-18: Library Info Screen

The Miscellaneous Library Info screen displays the following information:

- The library's firmware revision
- Boot code revision
- Hardware revision
- The library's current local IP address
- Ethernet address
- Library serial number
- Partitioning enable key

If there are multiple valid enable keys for the Library, they are displayed on this screen.

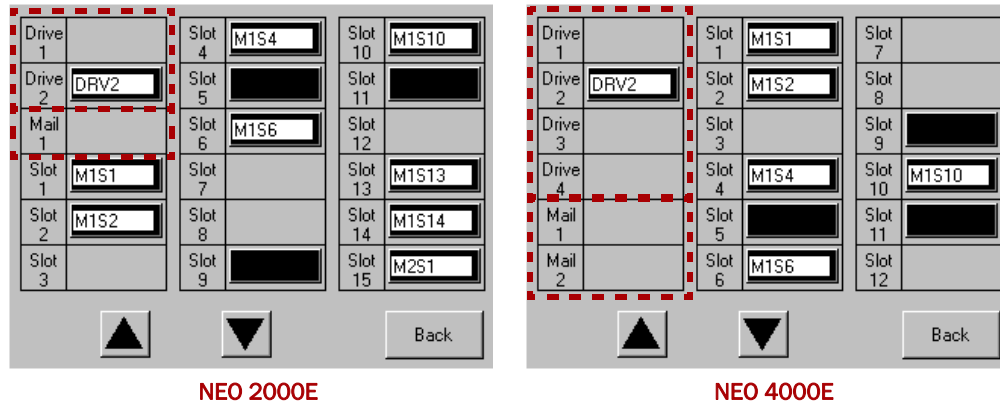
- Number of power-on hours

No modifications can be made to the information on this screen.

Viewing Cartridge Map

The Cartridge Map provides a visual indication of where cartridges are present in the library drives and cartridge slots. Drives are listed first, followed by Mail Slots, and then regular slots. Only slots reported to the host are shown. If available, the bar code label is shown for the cartridge ([Figure 4-19](#)).

To view the cartridge map, go to **Menu > Cartridge Map**.



NEO 2000E

NEO 4000E

Figure 4-19: Initial View Cartridge Map Screen

Use the ▲ or ▼ arrows to move between screens. The screens loop so you can go in either direction to quickly find a particular slot. No modifications can be made to the information displayed on these screens. Refer to “Moving Media” on page 4-7 for information on changing the location of a cartridge.

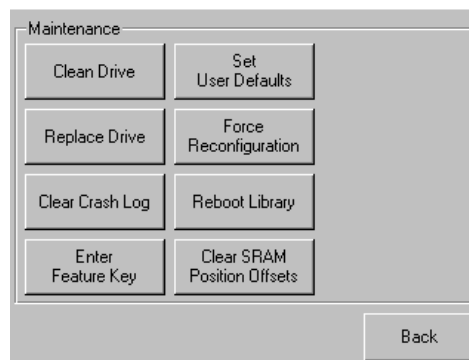
Accessing Maintenance Options

The Maintenance button displays a menu of options that address the general library service functions (Figure 4-20). The number and type of options varies depending on the installed options and firmware version. Use the ▲ or ▼ arrows to move between screens.



IMPORTANT: The Maintenance option is intended for use by Overland Authorized Service Technicians and, with the exception of Clean Drive, is not recommended for access by end users.

To access the Maintenance menu, go to **Menu > Maintenance**. The Maintenance Menu is displayed (Figure 4-20).

**Figure 4-20: Maintenance Menu Screen**

CAUTION: When you press any Maintenance button other than Replace Drive, the library is automatically and immediately taken offline. Once the action is completed, the library automatically goes back online. The hot-swap feature allows the library to remain online while a drive is being replaced.

Table 4-2 describes the maintenance functions that can be accomplished using the Maintenance menu:

Table 4-2: Maintenance Menu Functions

Option	Description
Clean Drive	Using a screen similar to the Move Media screen (Figure 4-12 on page 4-8), selected drives can be cleaned.
Clear Crash Log	The non-volatile crash log entries are set when the CPU detects a fatal execution error (such as “divide by 0” or page fault), to provide sufficient information to trace the error back to the offending line of code.
	 CAUTION: Use this clear option only at the direction of an authorized service person.
Clear SRAM Position Offsets	The positions for all servo targets (bins, Mail Slots, pass-through slot, and drives) are corrected on the first fetch and are stored in Static RAM (SRAM).
	 CAUTION: Use this clear option only at the direction of an authorized service person.
Enter Feature Key	Provides the means to enter a feature key, which enables an optional, purchased feature, from the library's touch screen GUI.
Flash Slaves*	Updates the firmware of a Slave library using the Master firmware image.
	NOTE: The Flash Slaves option is displayed only when the library is configured as a multi-module unit.
Force Reconfiguration*	Forces an immediate reconfiguration of the NEO Series library to the appropriate settings of Master, Slave, or Standalone. Used whenever a drive or library module is permanently removed.
	NOTE: NEO Series libraries automatically reconfigure themselves when a new drive or library module is added.
Replace Drive*	Presents a screen with buttons for each drive. Press a drive button to deactivate that drive for removal. If a tape is currently in the drive, you are prompted to move the tape to a different location.
Reboot Library*	Forces an immediate reboot of the NEO Series library.
Set User Defaults*	Resets the user defaults to the factory default values stored in non-volatile memory. The library immediately reboots upon completion.
	 CAUTION: This clears ALL customer configured settings such as IP addresses.

* Recommended for Overland Authorized Service Technicians only.

Running Library Diagnostics

The NEO Series libraries provide six user-accessible diagnostics that calibrate and exercise the library. All six library diagnostics are available from the touch screen GUI.



IMPORTANT: The Sensor Test, Tachometer Diagnostic, Vertical Calibration (NEO 4000E only), and Friction Diagnostic options are intended for Authorized Service Personnel only.

The Cartridge Cycle and Drive Cycle diagnostics are also available from WebTLC, where they may be specified to run for a specific duration or indefinitely (for details, see [“Perform a Timed or Free-Running Library Diagnostic” on page 6-27](#)).

To access the diagnostics functions, press **Menu > Diagnostics**. The Diagnostics Menu screen is displayed ([Figure 4-21 on page 4-15](#)).

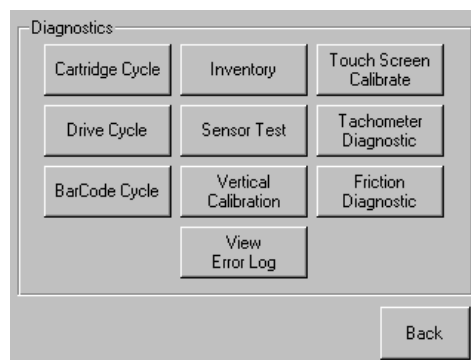


Figure 4-21: Diagnostics Menu Screen (4000E)

NOTE: We recommend that you set a Service level password for the Diagnostics menu. For instructions on setting passwords, see [“Setting Passwords for Access to Library Functions” on page 5-1](#).

Cartridge Cycle Diagnostic

The Cartridge Cycle diagnostic moves cartridges between magazine slots. Selection of the source and destination slots is random to mimic the action of a typical external application. The diagnostic reports the total number of bin swaps while running.

To run the Cartridge Cycle diagnostic, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu (as shown in [Figure 4-21 on page 4-15](#)), press **Cartridge Cycle**.

The screen is displayed ([Figure 4-22](#)).

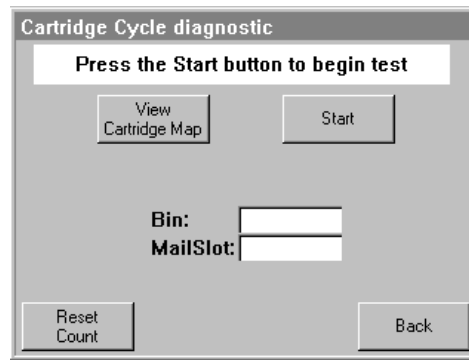


Figure 4-22: Starting the Cartridge Cycle Diagnostic

3. Press Start.

The screen now indicates that the cartridge cycle diagnostic test is running (Figure 4-23). The diagnostic reports the total number of bin swaps while running. This diagnostic will continue to run until commanded to stop or a fault is detected.

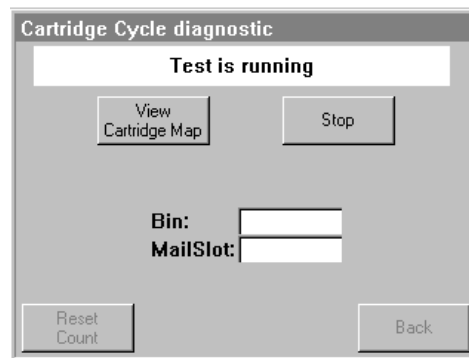


Figure 4-23: Running the Cartridge Cycle Diagnostic

4. When satisfied with the diagnostic, press Stop.

You receive the message, “Test has been stopped.”

Drive Cycle Diagnostic

The Drive Cycle diagnostic also moves cartridges randomly between bins but inserts a drive stow or fetch operation after every 12th cartridge stow to a magazine. Accumulated slot cycles and drive cycles are reported to the touch screen display.

Progress is also reported to the WebTLC display if the diagnostic was initiated from that interface (for details, see [“Perform a Timed or Free-Running Library Diagnostic” on page 6-27](#)).

To run the Drive Cycle diagnostic, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu (as shown in [Figure 4-21 on page 4-15](#)), press **Drive Cycle**.

The Drive Cycle diagnostic will run until commanded to stop or a hard fault occurs.

Bar Code Cycle Diagnostic

The Bar Code Cycle diagnostic tests the accuracy and repeatability of the bar code scanner. It performs an initial inventory and records all bar codes present, associating them with specific slots. The diagnostic then re-inventories the library and compares the bar code for each slot to the reference inventory.

To run the Bar Code Cycle diagnostic, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu (as shown in [Figure 4-21 on page 4-15](#)), press **Bar Code Cycle**.

The diagnostic continues to run until an error occurs or it is halted by the operator.

Inventory Diagnostic

The Inventory diagnostic simply performs an inventory of all installed magazines and updates the cartridge map. The drives are not checked.

To run the Inventory diagnostic, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu (as shown in [Figure 4-21 on page 4-15](#)), press **Inventory**.

Viewing the Error Log

The View Error Log diagnostic does not perform any physical actions. This non-volatile error log is displayed, showing all the faults posted by the library since SRAM was last initialized.

To view the error log, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu ([Figure 4-21 on page 4-15](#)), press **View Error Log**. The most recent error log entries are displayed ([Figure 4-24](#)).

Most Recent Error Log Entries	
10 Power-On Hours:	FSC 8001
5 Power-On Hours:	FSC 3032
2 Power-On Hours:	FSC 5011

Back

Figure 4-24: Library Error Log

The error log lists the Fault Symptom Codes (FSCs) for each error. To identify the FSCs of interest, refer to [“Fault Symptom Codes” on page 9-3](#).

Calibrating the Touch Screen

Touch screen input devices are separate from the display screens that they overlay. As a result, there is no built-in relationship between the coordinates of a spot on the display screen and the coordinates sensed when someone touches directly over that spot. The software for the touch screen interface must learn which spots on the touch sensor overlay which spots on the screen. This is called touch screen calibration.

The library's touch screen should be calibrated any time the touch screen is not responding easily or when the touch screen is serviced or the controller replaced.

To calibrate the touch screen, follow these steps:

1. From the Default screen, press **Menu > Diagnostics**.
2. From the Diagnostics menu (as shown in [Figure 4-21 on page 4-15](#)), press **Touch Screen Calibrate**.

The initial touch screen calibration screen is displayed ([Figure 4-25](#)).

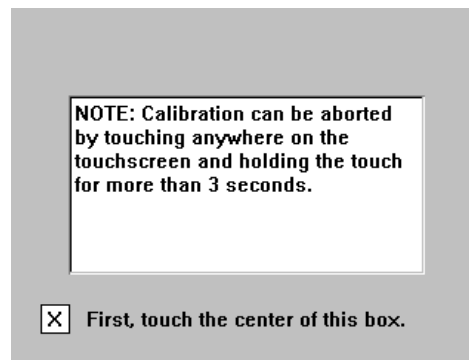


Figure 4-25: Initial Touch Screen Calibration Screen

3. Use a stylus or similar blunt instrument to gently touch the center of the box indicated in [Figure 4-25](#).

The second touch screen calibration screen is displayed ([Figure 4-26](#)).

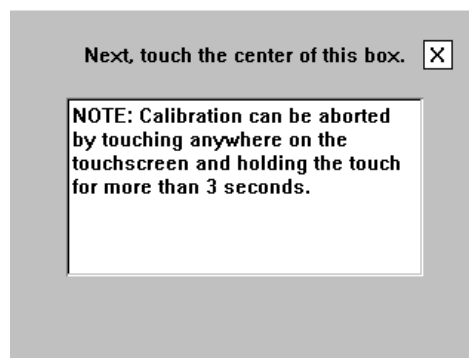


Figure 4-26: Second Touch Screen Calibration Screen

4. Use a stylus to gently touch the center of the box indicated in [Figure 4-26](#).

The final touch screen calibration screen is displayed ([Figure 4-27](#)).

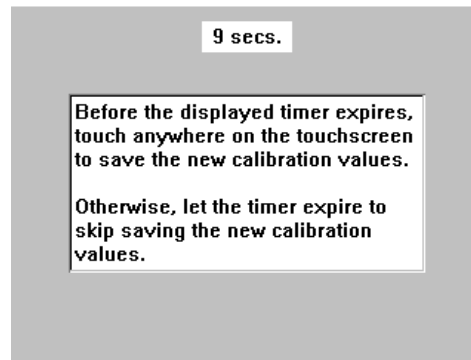


Figure 4-27: Final Touch Screen Calibration Screen

- Before the timer expires (you have ten seconds), use the stylus to touch anywhere on the touch screen to save the new touch screen calibration values. You receive the message, “Saving new calibration values,” and then return to the Diagnostics menu. The library’s touch screen has now been calibrated and will now respond to touch easily and accurately.

Factory (Access) Option



IMPORTANT: The Factory option is intended for use by Overland Factory Technicians only and is not available for access by end users.

Security Level Option



IMPORTANT: The Security Level option is intended for use by Overland Factory Technicians only and is not available for access by end users.

Editing the Library Options

In the Edit Options area, press **Library** to edit the library’s user options (Figure 4-28). Use the ▲ or ▼ arrows to move between screens.

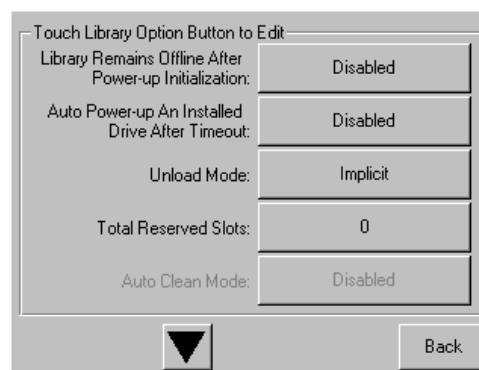


Figure 4-28: Library Edit Options Initial Screen

NOTE: The current library user settings can be viewed in a read-only format when you go to **Menu > Library Options**.

Table 4-3 shows the different library options available:

Table 4-3: Editable Library Options

Option	Description
Library Remains Offline After Power-up Initialization	Enable or disable whether the library remains offline after power-up initialization. If enabled, you must press the Online button on the Default screen to bring it online. Default: Disabled.
Auto Power-up An Installed Drive After Time-out	Enable or disable whether a tape drive automatically powers up after being replaced if it is not turned on manually. There is a short two-second delay before the automatic power up occurs. Default: Enabled
Unload Mode	Select either an implicit or explicit tape unload mode for a Move Media command from the host. If Implicit is selected, the library unloads a tape drive before attempting to move a cartridge from that drive. If Explicit is chosen, the host must issue an Unload command to a tape drive before each Move Medium command. Default: Implicit.
Total Reserved Slots	Reserve up to 15 Data slots that are located in the last magazine. The slots are reserved from the last enabled slot to the end of the magazine. The reserved slots can be used to store cleaning cartridges and are labeled “Cling <i>n</i>” on the Status screens. Default: Ø
Auto Clean Mode	Enable or disable the automatic cleaning cycle driven by tape drive requests. NOTE: To use this option, you must have reserved one or more slots for a cleaning cartridge using the Total Reserved Slots option. Default: Disabled.
Drive and Slot Numbering	Specify whether elements in the library use either zero-based or one-based numbering. This only affects the touch screen GUI and WebTLC displays, not the actual element addresses. For example, the first slot would be either Slot 0 (zero-based) or Slot 1 (one-based). Default: One-Based

Table 4-3: Editable Library Options(Continued)

Option	Description
Library Mode	Set the operating mode to Random or one of these sequential modes: • Sequential Drv 1 • Sequential Drv 2 (if installed) • Sequential Drv 3 (if installed, NEO 4000E only) • Sequential Drv 4 (if installed, NEO 4000E only) • Sequential Split (if two or more drives installed) Sequential Modes use only one magazine per drive. Random is the normal operating mode that gives complete control of the library to the host software. Sequential Mode is locally controlled. Begin by using the GUI Move Media command to load the first cartridge of the sequence into the drive. When the host unloads the cartridge from the drive, it is returned to the slot and the next cartridge is loaded in magazine numerical order. This continues until all of the cartridges have been loaded, an empty slot is encountered, or the GUI is used to unload a tape from the drive. In Sequential Split mode, magazines and drives are paired as follows: NEO 2000E Left Magazine – Drive 1 Right Magazine – Drive 2 NEO 4000E Upper Left Magazine – Drive 1 Upper Right Magazine – Drive 2 Lower Left Magazine – Drive 3 Lower Right Magazine – Drive 4 Sequential Mode limitations: • There is no host access to the library robotics. • Cannot be used with a partitioned library. • Cannot be used with multi-module configurations. • Mail slots cannot be used. • Reserved slots and Auto Cleaning cannot be used. • Move media, drive cleaning and diagnostics are not available in WebTLC. • If a drive signals cleaning is required, the sequential operation is terminated. Default: Random

Table 4-3: Editable Library Options(Continued)

Option	Description
Sequential Mode	If the Library Mode is set to one of the sequential settings, you use this option to set the sequential operation to Normal, Recirculate, or Autoloader mode. Normal Mode: Operates as described above in Library Mode. Recirculate Mode: Instead of stopping after the cartridge in the last slot for the drive has been unloaded by the host, the operation continues by loading the first cartridge in the magazine. Recirculate will continue until an empty slot is encountered or the operator unloads the tape using the touch screen GUI. Autoloader Mode: This mode will skip any empty slots in the magazine by continuing with the next available cartridge in the magazine and stops only when the last cartridge has been loaded. Default: Normal
LCD Contrast Adjust	Permanently increase or decrease the contrast of the LCD display. The incremental steps range from 1 to 32. The Contrast controls on the Default screen only temporarily change the contrast of the display. Default: 16
Mail Slot Mode	NOTE: For partitioned libraries, the mail slot configuration is selected during partitioning configuration. Any previous settings are reset at that time. Select the Mail Slot configuration of the left magazines. For multi-module systems, the Mail Slots in the Master and each Slave module can be individually configured. Disabled Mail Slots are enabled as data cartridge slots. Only left magazines can be configured for Mail Slots. NEO 2000E choices: • All Mail Slots Disabled • Single Mail Slot Enabled (1 mail slot) • Mail Magazine Enabled (15 mail slots) NEO 4000E choices: • All Mail Slots Disabled • Both Single Mail Slots Enabled (2 mail slots) • Upper Mail Slot Only Enabled (1 mail slot) • Lower Mail Slot Only Enabled (1 mail slot) • Upper Mail Magazine Enabled (15 mail slots) • Both Mail Magazines Enabled (30 mail slots) NEO 2000E Default: Single Mail Slot Enabled NEO 4000E Default: Both Single Mail Slots Enabled

Table 4-3: Editable Library Options(Continued)

Option	Description
Bar Code Label Size	Limit the maximum number of characters reported for the bar code label both to a host and on the Cartridge Map. Possible settings are 1 through 8. This is to accommodate software that requires that bar code labels be less than eight characters. It is used primarily for a Read Element Status command. Default: 8
Bar Code Label Alignment	Specify the alignment of a bar code label reported in the response to the SCSI Read Element Status command. The options are Left Align or Right Align. When used in conjunction with the label size option, this option strips unwanted trailing characters (left alignment) or leading characters (right alignment). Default: Left Align
Bar Code Label Check Digit	 CAUTION: Standard bar code labels from Overland do not have a check digit. Enabling this option prevents those labels from being read. Enable or disable the verification of a check digit character in the bar code label. • For bar code labels <i>without</i> the check character, select Disabled. • For bar code labels <i>with</i> the check character, select either Enable Check, Send [the check character to the host] or Enable Check, Don't Send [the check character to the host]. If disabled and a bar code label with a check character is read, the check character is displayed as part of the bar code. If enabled and a bar code label with no check character is read, the library will indicate No Label Present. Default: Disabled
Bar Code Reader	Specify whether the bar code reader will retry reading bar code labels on individual cartridges. Default: Retries Enabled
Module Configuration	Specify the Library Module Configuration. Three options are available: • Standalone - Used when the library contains a single unit. • Master - Used to designate this library as the primary library which controls the XpressChannel® in a multiple module system. • Slave - Used to designate this library as a slave library in a multiple module system. Default: Standalone

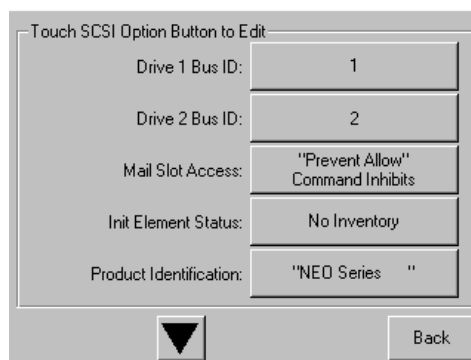
Table 4-3: Editable Library Options(Continued)

Option	Description
Custom Display	Turn off the Overland Storage name and logo that is displayed during the POST and on the Default screen. When Custom 1 Enabled is selected, "Initializing" is displayed during the POST. On the Default screen, the upper left corner and logo area is left blank. Also, Technical Support Assistance is disabled and the "Overland Storage" name on the WebTLC status page is removed. Custom 2 through Custom n are for specific vendors and should not be used. The setting for this option will not change when Set User Defaults is selected (go to Menu > Maintenance > Set User Defaults). Default: Disabled
Library Auto Power-On Mode	This option lets you enable or disable an auto power-on feature for the library. When enabled, if the power is interrupted, the library will automatically power up as soon as the power is restored. When disabled, the operator will have to touch the GUI touch screen when the power is restored. The factory setting is Disabled. The setting for this option will not change when Set User Defaults is selected (Menu > Set User Defaults). Default: Enabled

Modifying the SCSI/FC/SAS Options

In the Edit Options area, press **SCSI/FC/SAS** to set or modify the SCSI, FC, or SAS settings for the Library. See [Figure 4-29](#) and [Table 4-4 on page 4-25](#) for the editable options. For FC configurations, also refer to [Figure 4-30](#) and [Table 4-5 on page 4-27](#) for additional FC options. Use the ▲ or ▼ arrows to move between screens.

NOTE: The options displayed vary based on the type of drives installed in the library. Because SAS drives have no customer adjustable settings, they are grayed-out.

**Figure 4-29: SCSI/FC/SAS Edit Options Initial Screen (SCSI 2000E)**

NOTE: The current library SCSI, FC, or SAS settings can be viewed in a read-only format when you go to **Menu > SCSI/FC/SAS Options**.

Table 4-4 shows the editable SCSI, SAS, FC options available:

Table 4-4: NEO Library SCSI/FC/SAS Editable Options

Option	Description				
Drive <i>n</i> Bus ID (SCSI configuration only)	Set the SCSI addresses of the drives. The default addresses are: <table> <tr> <td>Drive 1 = ID 1</td><td>Drive 2 = ID 2</td></tr> <tr> <td>Drive 3 = ID 3</td><td>Drive 4 = ID 4</td></tr> </table> For an illustration of the tape drive and connector locations, see Figure 1-3, Figure 1-4, and Figure 1-5 in Chapter 1 starting on page 1-3.	Drive 1 = ID 1	Drive 2 = ID 2	Drive 3 = ID 3	Drive 4 = ID 4
Drive 1 = ID 1	Drive 2 = ID 2				
Drive 3 = ID 3	Drive 4 = ID 4				
Drive <i>n</i> Configuration (FC configuration only)	Press Set Values to display additional screens of editable data for Fibre Channel drives. See Table 4-5, “NEO Library FC Editable Drive Options,” for details.				
Mail Slot Access	Specify if a host Prevent Allow Medium Removal command inhibits or allows an operator access to the mail slot magazine. Default: “Prevent Allow” Command Inhibits.				
Init Element Status	Specifies the library’s response to the Initialize Element Status command. The possible settings are No Inventory, Force Inventory, and Force Label Scan. Default: No Inventory.				
Product Identification	Specifies the response of the library’s robotics to the Product ID field of the SCSI Inquiry command. The choices are NEO Series, LXB, or a custom ID (Vendor Unique). The ID must be exactly 16 characters long, so blanks are appended to the end of a shorter ID. Default: NEO Series (+6 spaces).				
Vendor Identification	Specifies the response of the library’s robotics to the Vendor ID field of the Inquiry command. The choices are OVERLAND or a custom ID (Vendor Unique). The ID must be exactly 8 characters long so blanks are appended to the end of a shorter ID. Default: OVERLAND.				
Post Recovered Errors	Enable or disable the reporting of TapeAlert informational exception conditions with a Recovered Error sense key, when the Method of Reporting Information Exceptions (MRIE) field is set to a value of 0x3 in Mode Page 1Ch, or if the TapeAlert Mode option is set to Rec. Error (cnd). Default: Disabled.				

Table 4-4: NEO Library SCSI/FC/SAS Editable Options(Continued)

Option	Description
TapeAlert Mode	Specifies conditions for logging and reporting the following TapeAlert data options: • Logging Disabled—Inhibits the logging feature. • No Exceptions—Information exceptions are not reported. • Generate Unit Attention—Reports information exceptions with a Unit Attention sense key and an ASC/ASCQ of 5D/00. • Conditionally Generate Recovered Error—If Post Recovered Errors is enabled, reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • Unconditionally Generate Recovered Error—Unconditionally reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • Generate No Sense—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00. • Report on Unsolicited Request Sense—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00 only in response to an unsolicited Request Sense command. Default: Logging Disabled.
Door Open Response	Specifies the SCSI response when a library media drawer is being accessed manually. The choices are Ready or Not Ready. Default: Not Ready.
Report Element Type	Determine the method to report the type of library elements installed using the Read Element Status command. The options are Disabled or Enabled. Select Disabled for the standard method that uses the DVCID CDB field. Select Enabled to use the vendor-specific field in the Element Descriptor. Default: Disabled.
Report Binary Device ID for Fibre Channel Drives	Enable or disable the reporting of the World Wide Node Name in the Device ID field of the Read Element Status Data Transfer Element Descriptor. When disabled, this option returns the ASCII descriptor (Vendor ID + Product ID + Serial Number). Default: Disabled.

For FC configured systems:

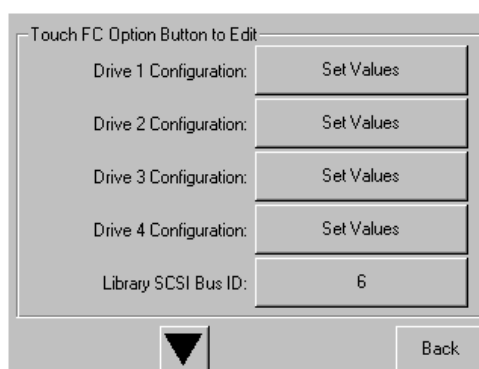


Figure 4-30: FC Initial Edit Options Screen

Pressing Set Values opens a new screen that lets you set the values for the options shown in [Table 4-5](#).

Table 4-5: NEO Library FC Editable Drive Options

Definition	Option and Default Description
Port <i>n</i> Control	Specifies the method for setting the AL-PA. The settings are Disable, Soft Address, and Hard Address. When Hard Address is selected, the Port <i>n</i> ID button is enabled to select a valid Loop ID. Only one port at a time can be used. Default: Soft Address.
Port <i>n</i> Loop ID	Specifies the Loop ID that the tape drive uses to determine the AL-PA for Port <i>n</i> . The possible settings are 1-125. NOTE: This option requires Hard Address to be selected in the Port <i>n</i> Control option. Default: 1.
World Wide Port <i>n</i> Name	Select either a Default or Custom WWPN. The Default setting uses the factory-configured WWPN while Custom allows you to create a unique name for Port <i>n</i> . Default: Default.
World Wide Node Name	Select either a Default or Custom WWNN. The Default setting uses the factory-configured WWNN while Custom allows you to create a unique name for the device. Default: Default.
Topology	Specifies the topology used by the Fibre Channel ports. The four options are Use Loop, Allow Point-to-Point; Use Point-to-Point, Allow Loop; Force Loop; or Force Point-to-Point. Default: Use Loop, Allow Point-to-Point.
Speed	Sets the link speed in gigabits used by the Fibre Channel ports. The options are Auto , 1 Gb/sec. , 2 Gb/sec. , 4 Gb/sec. , or 8 Gb/sec. (depending on the drives installed). In Auto mode, the drive negotiates the speed with the host. Default: Auto.

Editing the Network Options

In the Edit Options area, press **Network** to set or modify the library's network settings (Figure 4-31). Use the ▲ or ▼ arrows to move between screens.

Touch Network Option Button to Edit:

IP Address Determination: Obtain IP Addresses From a DHCP Server

IP Address: 10.1.10.98

IP Mask: 255.255.0.0

IP Gateway: 10.1.8.99

DNS Server: 10.1.8.14

Navigation: ▼, Save, Cancel

Figure 4-31: Network Edit Options Initial Screen

NOTE: The current library network settings can be viewed in a read-only format when you go to **Menu > Network Options**.

Table 4-6 shows the editable network options that are available:

Table 4-6: Network Editable Options

Option	Description
IP Address Determination	Select the method for setting the IP address of the library's embedded WebTLC utility protected Internet site. The settings are Obtain IP Address From a DHCP Server or User Specified IP Address . Default: Obtain IP Address From a DHCP Server.
IP Address *	Enter a valid IP address for WebTLC using the numeric keypad. Default: 255.255.255.255
IP Mask *	Enter a valid Subnet Mask address for WebTLC using the numeric keypad. Default: 255.255.0.0.
IP Gateway *	Enter a valid Gateway IP address for WebTLC using the numeric keypad. Default: 255.255.255.255.
DNS Server *	Enter a valid DNS server address using the numeric keypad. Default: 255.255.255.255.
Web Level 1 and FTP Login	Enter up to 15 alphanumeric characters as a password for Level 1 access via WebTLC. Default: 1.
Web Level 2 Login	Enter up to 15 alphanumeric characters as a password for Level 2 access via WebTLC. Default: 2.

Table 4-6: Network Editable Options(Continued)

Option	Description
Enable Web Secure Login	Select to encrypt the password entered at the WebTLC login screen. The options are Yes or No. Select Yes when the Java Console is enabled; otherwise, select No. Default: Yes.
Disable Web Level 2 Access	Control the level of access that users have to the WebTLC. The options are Yes or No. Level 1 limits access to the Status screen to display the library and drive status information and the History screen to display and download library trace files. Level 2 permits access to all screens including the Move Media, Setup, and Functions menus. Default: No.
Library Name	Enter a custom library name that is displayed on the WebTLC page. Up to 100 alphanumeric characters can be entered. Default: NEO Series.
Disable FTP Server	Disables FTP access to the library. This option is normally used for uploading drive or library firmware or downloading log files. Default: No.

* These options are only valid if the *IP Address Determination* option is set to **User Specified IP Address**. Otherwise, they are greyed out.

Editing Passwords

You can use the GUI to change the passwords for either the GUI interface or the remote WebTLC access.

GUI Passwords

In the Edit Options area, press **Passwords** to create or change a password used to access the NEO GUI:

1. From the Default screen, press **Menu > Passwords**.

The GUI screen for setting library passwords is displayed ([Figure 4-32](#)).

Figure 4-32: GUI Screen for Setting Library Passwords

2. In the Security Level section, select the password level you wish to set by pressing the appropriate button (**User Level 1**, **User Level 2**, or **Service**).
3. In the **New Level *n* Password** input box, enter one to four digits using the decimal keypad.
4. Touch the **Reenter New Level *n* Password** input box to activate it.
5. Reenter the same password number you entered in Step 3.
6. Press **Save**.
You receive the following confirmation message:
The new <type> password was successfully saved.
7. Press **OK**.

To disable password verification for a Level 1, Level 2, or Service GUI password, follow the procedure above and enter **0000** as the new password.

WebTLC Passwords

Access to the various WebTLC web pages is controlled by the level of security set when initially logging into the WebTLC:

- Web Level 1 (User) access – View Status and History screens only (default: “1”).
- Web Level 2 (Administrator) access – View, configure, and move media; set or change the user-level password; and use all WebTLC functions (default: “2”).

To change the WebTLC passwords:

1. At the GUI, press **Menu > Network**.
2. Press the **down-arrow (▼)** once.
The Web Level options are shown.
3. Press **Web Level 2 Login**.

4. At the Web Level 2 Login screen (Figure 4-33 on page 4-31), enter the **new password** in the Enter Login field.
Use Alpha/Numeric and Shift Up/Down to select the appropriate keyboard.

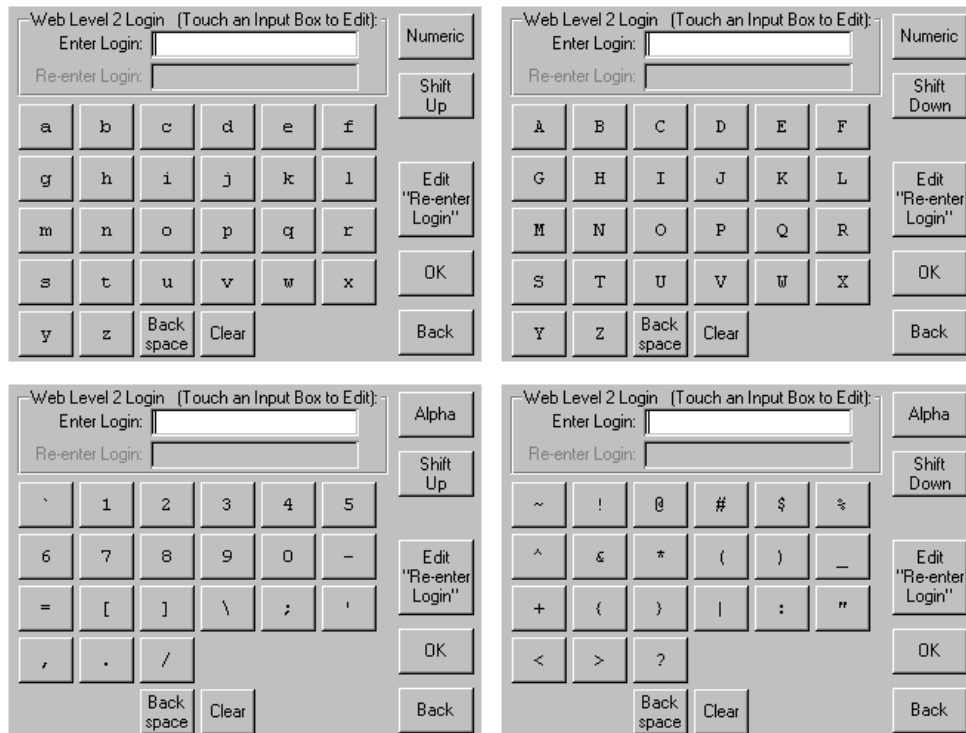


Figure 4-33: GUI Screens for Setting WebTLC Level 2 Passwords

5. Press **Edit "Re-enter Login"** and retype the password in the Re-enter Login field.
6. Press **OK**.
7. Press **Save**, then **OK** to confirm.
8. From the Menu screen, press **Maintenance > Reboot Library**.
The WebTLC password change becomes effective after the library reboots.



Introduction

This chapter covers some of the operations and configuration changes to the NEO Series libraries that occur during everyday use.

The library provides several configuration options to support a variety of applications and platforms. The settings for each of the available options are stored in non-volatile memory in the library.

For most applications, you do not have to change the factory default settings; however, if you do need to change the configuration, use the instructions provided in the following sections. If you are uncertain whether you need to change a setting, contact your authorized service provider.

For detailed information about the GUI touch screen and its options, refer to [Chapter 4, “Using the Touch Screen GUI.”](#)

Setting Passwords for Access to Library Functions

The NEO Series library lets you assign up to three levels of security using passwords. A fourth level of security is built-in for factory technicians. The default setting is Passwords Disabled. [Table 5-1](#) shows the different security levels and their scope of access:

Table 5-1: NEO Library Password Security

Security Level	Description
User Level 1	Controls access to Mail Slot Access.
User Level 2	Controls access to Power, Online/Offline, Magazine Access, and Move Media.
Service (Level 3)	Controls access to the Utilities and Edit Options area.
Factory (Level 4)	Reserved – no customer access.

You can manage the passwords for User Levels 1, 2, and the Service Level using the Passwords button as described in this section. Once passwords are enabled, you are always prompted for a password whenever its associated buttons are pressed.

When you return to the Default screen, all password access is cleared and you must reenter the password for new access. Passwords can also be validated by using the Security Level option (see “[Validating Passwords](#)” for details).

Each password is represented by four decimal digits that are stored in NVRAM (non-volatile memory) in a range of 1 to 9999 (leading zeros are ignored).

NOTE: While the input box allows for five digits, the passwords are limited to four.

Once Service Level is enabled, you must have that level of password to change or disable the password protection. Also, you can use a higher level password to gain access to a lower level operation. For example, you could use a Service password to access the Move Media operation (which requires Level 2 access).

Validating Passwords

When you have set User-Level passwords or a Service password, you can validate a password without disturbing the operation of the library.

1. Select **Menu > Security Level**.
2. Press the **Security Level** button for the password that you want to validate ([Figure 5-1](#)).

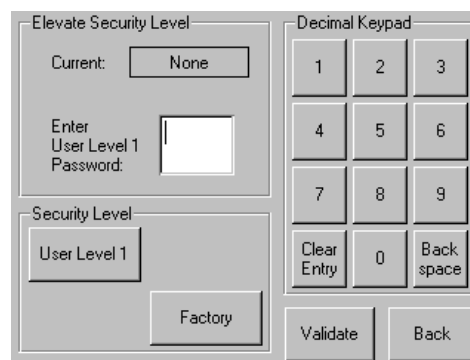


Figure 5-1: Validating a Library Password

3. Enter the password in the Enter [Security Level] dialog box and press **Validate**.
 - If the password is correct for the selected security level, the Current security level box will flash the security level.
 - If the password is incorrect for the selected level, a warning box will indicate that the password was incorrect.

Entering Passwords

When you have set User-Level passwords or a Service password, the NEO 2000E/4000E Library automatically enforces the password access to the appropriate library functions.

In the example shown in [Figure 5-1](#) above, we set the User Level 1 password, which controls access to the Mail Slot.

Thus, when a user presses **Mail Slot Access** from the Default screen, the user must then enter the correct Level 1 password and press **Validate** to access the Mail Slot ([Figure 5-2 on page 5-3](#)).

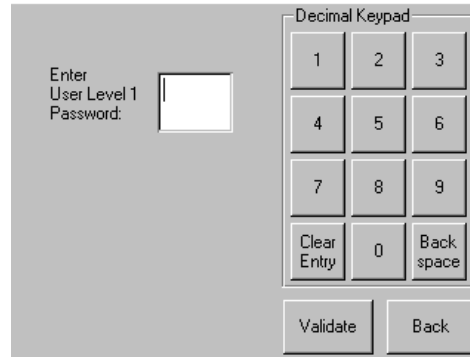


Figure 5-2: Entering a Library Password

Setting or Changing the Library Name

When there is more than one tape library in your installation, it is often useful to assign a name to each library. The default library name is *NEO Series*.

To set or change the name of a NEO Series tape library:

1. From the Default screen, press **Menu > Network**.
2. Then press the **down arrow** (▼) to access the second page of Network menu items (Figure 5-3).

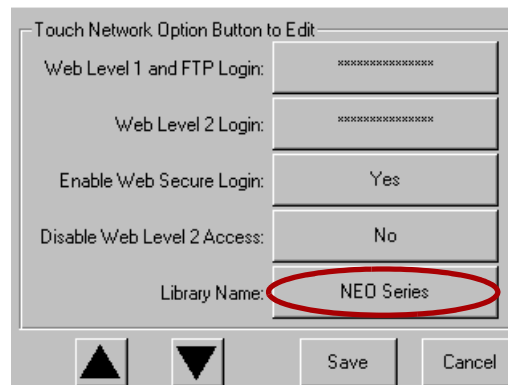


Figure 5-3: Accessing the Library Name Option

3. Press the **Library Name** button.
4. Use the keyboard display to enter the desired library name, then click **OK**.

The library name is displayed in two locations:

- In the NEO touch screen GUI. To view it there, go to **Menu > View Systems Data > Network Options**. Then press the **down arrow** (▼) to see the second page of network options, where the library name is displayed.
- On the WebTLC screen. The library name is displayed directly below the WebTLC navigation buttons.

Handling the Tape Cartridge Media

The tape cartridge media is the focus for most of the daily operations of NEO libraries. A NEO 2000E library manages up to 30 LTO cartridges including any cleaning cartridges. A NEO 4000E manages up to 60 LTO cartridges.

Bar Code Labels

The graphic below (Figure 5-4) shows you how to install a bar code label on an LTO tape cartridge.

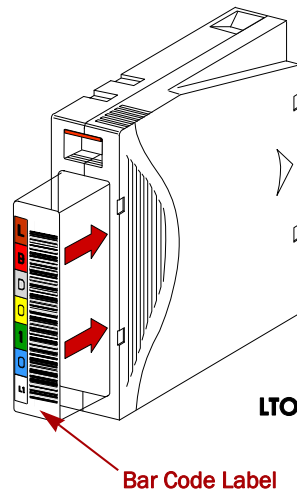


Figure 5-4: Bar Code Label Installation on LTO Cartridge



IMPORTANT: Only Overland Storage bar code labels are supported with the library. To order additional labels, contact your authorized Overland Storage reseller.

LTO Cartridge Media Tips

The following tips ensure maximum LTO cartridge media performance and life:

- For best results use Overland Storage media and bar code labels.
- Place labels only in the recessed area, just below the write protection switch. Never place labels on the top, bottom, sides, or rear of the cartridge as they can cause loader faults and interfere with normal operations. Labels placed in such locations can come off inside the equipment causing damage.
- Always inspect cartridges for incorrect or improperly attached labels.
- Never erase information on a cartridge label—always replace the label.

Opening the Library's Doors

The library module doors (Figure 5-5 on page 5-5) have both an electrical release (via the GUI touch screen) and a manual release. We recommend that you always open the doors using the GUI touch screen.

In an emergency, the doors can be manually opened by pushing a stiff wire against the mechanical releases directly behind the front panel.

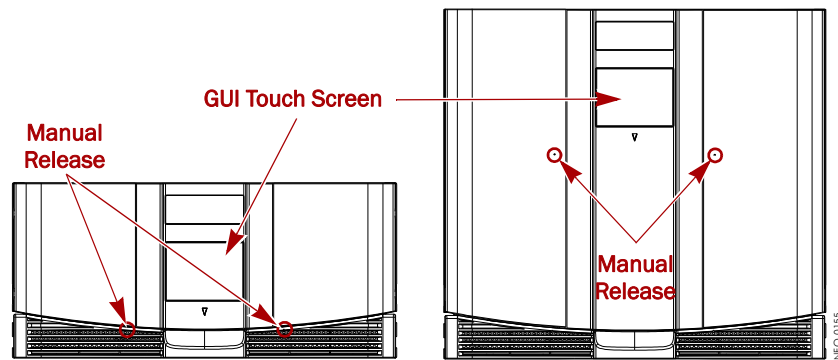


Figure 5-5: Opening Magazine Doors

There are two ways you can open the library's doors via the GUI touch screen:

- Mail Slot Access
- Magazine Access

Magazines



CAUTION: Always keep a loaded magazine level. Tilting the magazine can result in the tapes falling out. When removing a magazine, pull it straight out without twisting or pulling sideways. Also, do not hold a magazine by the handle only; place your other hand under the center of the magazine for added support.

There are two media magazines in the NEO 2000E library and four magazines in the NEO 4000E library. Each magazine holds up to 15 LTO cartridges. The magazines are removed through the front, as shown in [Figure 5-6](#).

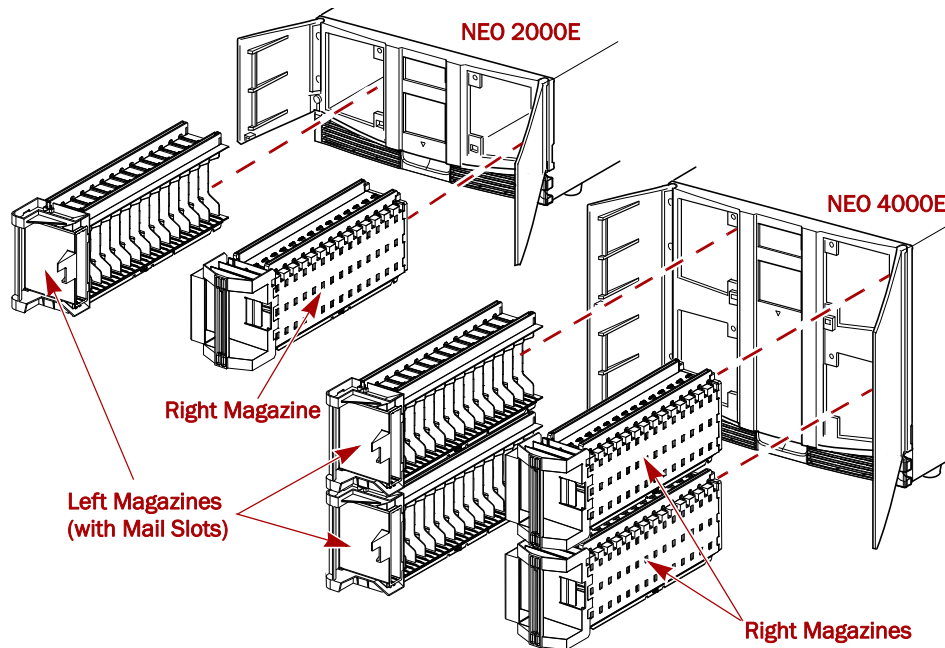


Figure 5-6: NEO Media Magazines

Using the NEO Library Mail Slot

The NEO libraries feature Mail Slots that allow you to import or export cartridges without interrupting library operation. Each Mail Slot ([Figure 5-7](#)) holds one cartridge and is located at the front of the left magazines.

The left magazines can be configured as mail slots (refer to **Mail Slot Mode** in [Table 4-3, “Editable Library Options,”](#) on [page 4-22](#) for more information).

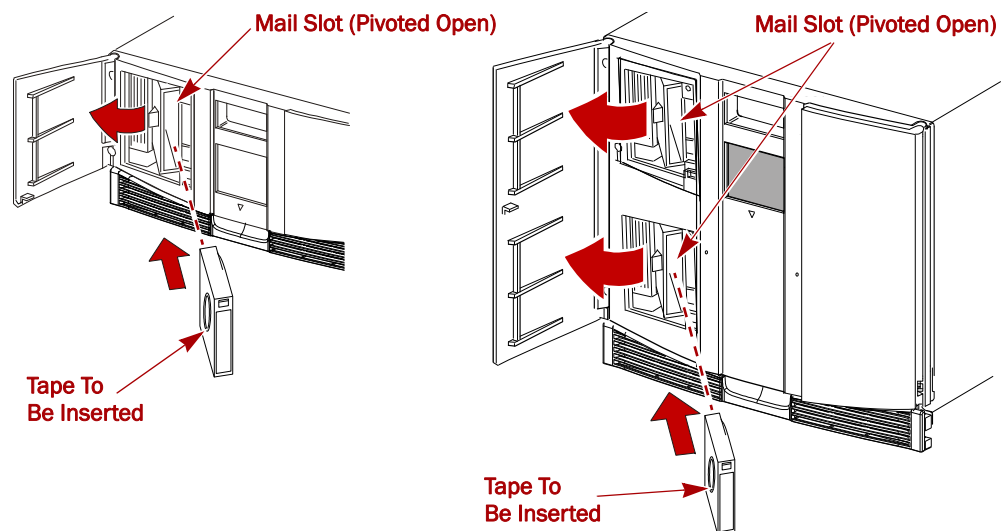


Figure 5-7: Mail Slot Locations

Insert tape cartridges so that the bar code labels are facing outward and the tape hub is toward the left. Handle and store tape cartridges in a clean, dust-free environment.

NEO 2000E Mail Slot: Adding or Removing Cartridges

Follow these steps to add or remove tape cartridges using the NEO 2000E Mail Slot:

1. At the Default screen, press **Mail Slot Access**.

NOTE: If a User password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

This automatically unlocks the Mail Slot.

2. When you hear the door latch release, open the **left door**.
3. Using the Mail Slot handle, open the **slot**, insert or remove the tape cartridge, and close the slot.

For a Mail Slot Magazine, the entire magazine is unlocked for removal.

4. Close the **door**.

This automatically locks and reinventories the Mail Slot.

5. Use the **Move Media** option to move the tape ("[Moving Media Using the GUI](#)" on page 5-9).

NEO 4000E Mail Slot: Adding or Removing Cartridges

Follow these steps to add or remove tape cartridges using NEO 4000E Mail Slots:

1. At the Default screen, press **Mail Slot Access**.

NOTE: If a User password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

2. Press a **Mail Slot** button.

This unlocks the Mail Slot selected. If desired, press the other **Mail Slot** button to unlock both slots.

3. When you hear the door latch release, open the **left door**.
4. Using the Mail Slot handle, open the **slot**, insert or remove the tape cartridge, and close the slot. If necessary, repeat for the other Mail Slot.

For a Mail Slot Magazine, the entire magazine is unlocked for removal.

5. Close the **door**.

This automatically locks and reinventories the Mail Slots.

6. Use the **Move Media** option to move the tapes ("[Moving Media Using the GUI](#)" on page 5-9).

Using Magazines for Bulk Exchanges

If you need to add or remove a large number of tape cartridges, it is usually easier to stop the library and open the media magazines.



CAUTION: To prevent unnecessary stress on the magazine, keep the magazine level and straight as it is removed. Do not twist or pull toward any side.

1. Press **Magazine Access**.

This takes the library offline. Wait for the robotics to come to a stop.

2. Press either a **specific magazine** button or unlock **Both/All**.

NOTE: If you click **Both/All** and the doors are in different partitions, you receive this message stating that accessing different partitions will cause the partitions to go off-line. Press **OK** to continue or press **Cancel** to cancel the operation.

3. Open the media access **doors**.

4. Unload a **magazine**.

a. Holding your thumb against the library chassis, pull slightly with your fingers to release the magazine **pressure catch**.

b. Gently pull the **magazine** straight out of the library with one hand underneath to help support it.

c. Add or remove the **media**.

d. Slide the **magazine** all the way back into the library.

5. Repeat [Step 4](#) for any **additional** magazines.

6. Close the **doors**.

The doors automatically relock, the library is inventoried, and it then comes back online.

7. To update the library and return to the Default screen, press **Back**.



IMPORTANT: If using the magazine for storage, be sure to adequately secure and package the magazine to protect the media during transit.

Moving Media Using the GUI

The Move Media command in the Library's touch screen GUI provides the means to move cartridges from one location to another inside the library without physically touching them:

1. At the Default screen, press **Move Media** (Figure 5-8).



Figure 5-8: NEO 4000E Default screen

NOTE: If a User Level 2 password is enabled, the validate password screen is displayed. Enter the correct password and press Validate.

2. If the library is partitioned, you are prompted to select the partition for the move operation (Figure 5-9) (P1, P2, etc.), then press **OK**.

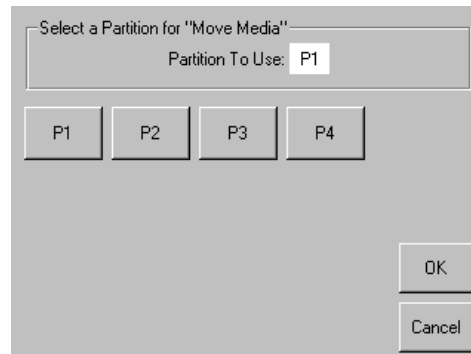


Figure 5-9: Select Partition for the Move Operation (4000E)

3. Use the Move Media dialog box (Figure 5-10) to select the Source and Destination:

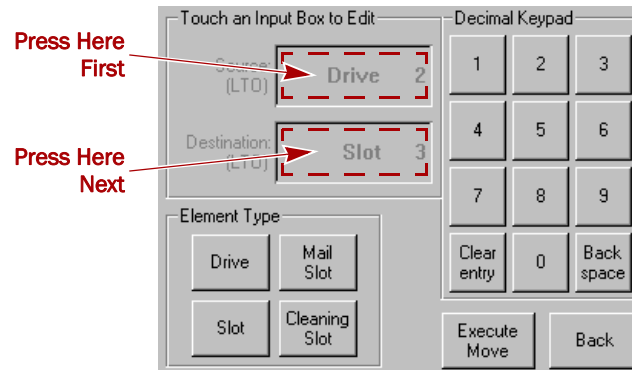


Figure 5-10: Move Media Dialog Box

NOTE: You can cancel the move operation at any time by pressing the **Back** button (which returns you to the Default screen). If a slot number is grayed out, that slot is not available. Clear your entry and enter a different slot number.

- a. Touch the **Source** input box to activate it.
- b. Select the Source Element Type (**Drive**, **Slot**, **Mail Slot**, or **Cleaning Slot**) by pressing the appropriate button on the lower left.

NOTE: The Cleaning Slot button is displayed only when a Reserved slot has been configured for the library.

- c. Enter the Source **element number** using the decimal keypad.
You can also repeatedly press the appropriate Source Element Type button to cycle through all possible options (slots or drives with a tape in them).

NOTE: If you use the keypad to enter a slot number and the number is shown grayed out, that slot is not available. Clear your entry and enter a different number.

- d. Touch the **Destination** input box to activate it.
- e. Select the **Destination Element Type** by pressing the appropriate button.
- f. Enter the Destination **element number** using the decimal keypad.
You can also repeatedly press the appropriate Destination Element Type button to cycle through all possible options (empty slots or drives).

4. Press **Execute Move**.

The tape cartridge is moved to the specified location. You are automatically returned to the Default screen when the operation is done.

Powering Down the Library

The Power button initiates a controlled power-down sequence that parks the robotics assembly and shuttle before powering down.

During the process, you are prompted to either confirm or cancel the shut down. The Power button can be password protected using User Level 2. For details, see [“Setting Passwords for Access to Library Functions” on page 5-1](#).

To power down the library:

1. From the Default screen, press **Power** (Figure 5-11).



Figure 5-11: The Power Button on the Default screen

A confirmation message is displayed.

2. Press **OK** to power down the library, or press **Cancel** to cancel the power down operation.

Host Lock Out

Access to the library's media and magazines can be locked by the backup software running on the host (for example, Symantec's Backup Exec). The library provides no GUI touch screen override for this condition. Exiting the host software also locks media access.

Tip: If you are unable to access the library's magazine or media, check to see if the host backup software has blocked access to the NEO library.

NOTE: If in a locked status, media access can be restored by cycling the library power.



Introduction

The NEO 2000E/4000E WebTLC utility is an interface built into the tape library that provides remote access to and configuration of the library through an Ethernet port.

WebTLC hosts a dedicated, protected web site that can be accessed by a web browser using the IP address assigned to the NEO 2000E/4000E tape library.

Access to WebTLC is available either from a PC connected to your network or via the World Wide Web using the default HTTP port 80.

NOTE: If connecting a computer directly to the unit to access the WebTLC site, use either a auto-MDIX port or crossover Ethernet cable plugged into the Ethernet port at the rear of the unit.

The WebTLC default login page uses Java-based encrypted HTTP authentication that encrypts the password sent to the unit. The WebTLC firmware uses standard HTML-based pages that are served to a web browser. The password used to log in determines the level of access permitted.

NOTE: Physical options, such as tape removal, can only be accessed using the library's touch screen GUI.

WebTLC System Requirements

The WebTLC interface uses interactive buttons to access different web pages for configuring the library. In order to use WebTLC, you must have the following available:

- 10/100-BaseT Ethernet network
- NEO 2000E/4000E IP address (Default = Obtain IP Address From a DHCP Server)
- Host computer with Ethernet port
- Internet Explorer (3.0 or higher), Firefox (1.0 or higher), or Netscape (3.0 or higher) browser with Java and FTP configured

WebTLC IP Address Configuration

To set up WebTLC for remote access, you need to set up the IP addressing through the library's touch screen GUI.

To set up IP addressing:

1. Press **Menu > Network**.

The initial Network configuration dialog box appears (Figure 6-1).

Figure 6-1: Network Configuration Dialog: IP Addresses

The first field in this dialog box is the **IP Address Determination** field, which is set by default to **Obtain IP Addresses From a DHCP Server**.

2. Select one of the following methods of determining the library's IP address:
 - To set the IP addresses automatically, accept the default, **Obtain IP Addresses From a DHCP Server**, and exit.
 - To set IP addresses manually, press the **IP Address Determination** field. The following screen is displayed (Figure 6-2).

Figure 6-2: Setting User-Specified IP Addresses

3. Press **User Specified IP Address**.

"User Specified IP Address" is now displayed in the New field.

4. To accept this setting, press **OK**.

You return to the initial Network configuration dialog, but now the fields for setting the IP Address, IP Mask, IP Gateway, and the DNS Server are enabled (Figure 6-3).

Figure 6-3: Setting User-Specified IP Addresses

5. Select each field in turn, enter the required IP addressing information, then press **OK**.
6. Press **Save** to lock in your settings.

Tip: Once you have configured the IP addressing for remote access, we recommend that you change the WebTLC passwords from their default settings ("[Changing WebTLC Passwords](#)" on page 6-4).

Locating the Library's Local IP Address Set by DHCP

If you configure the library to obtain the library's local IP address from a DHCP server, each time you power up or reboot the library, a new local IP address may be assigned. To locate that newly assigned local IP address in order to log in to WebTLC, do the following:

From the Default screen, press **Menu > Library Info** ([Figure 6-4](#)). Write down the Local IP Address.

Miscellaneous Library Info	
Firmware Revision:	1.22
Boot Code Revision:	2
Hardware Revision:	3
Local IP Address:	10.1.25.78
Ethernet Address:	009000112233
Serial Number:	2B12345678
Partitioning Enable Key:	1122-1223-2233-2256- 1234-2345-0DA8-BECE
Power-On Hours:	2568
Back	

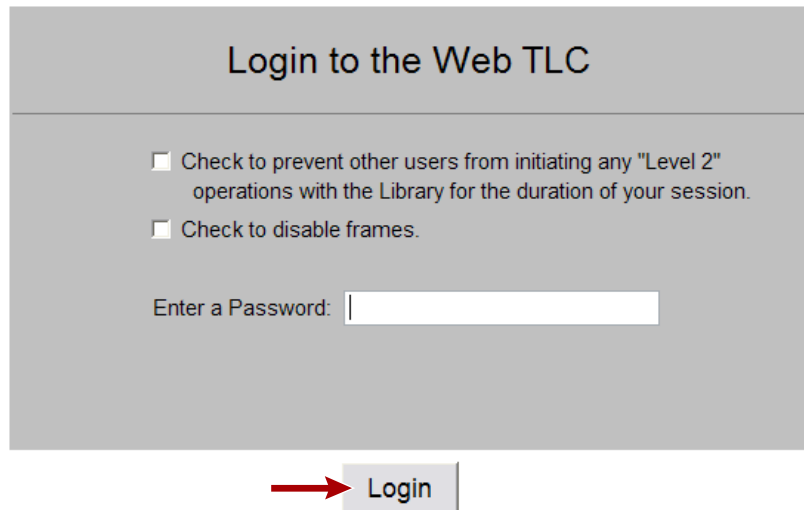
Figure 6-4: Current Local IP Address Displayed

Accessing WebTLC

To access **WebTLC**, follow these steps:

Tip: While you can log in regardless of the operational status, the library must be in Ready mode to communicate with WebTLC. If you are unable to access some WebTLC screens after logging in, check to see if the library is offline, still initializing, or being used locally.

1. Type the unique NEO 2000E/4000E **IP address** in the URL field of your browser, then press **Enter**.
2. At the Login screen ([Figure 6-5](#)), enter either the Web Level 1 (User) or Web Level 2 (Administrator) security password to set the level of access.



The image shows a web browser window titled "Login to the Web TLC". Inside the window, there are two checkboxes: "Check to prevent other users from initiating any 'Level 2' operations with the Library for the duration of your session." and "Check to disable frames.". Below these is a text input field labeled "Enter a Password:". At the bottom of the window is a "Login" button, which is highlighted with a red arrow pointing to it from the left.

Figure 6-5: WebTLC Login Screen

The default passwords are:

- Level 1 password = 1
- Level 2 password = 2

WebTLC Passwords. The WebTLC passwords are case sensitive and must be entered accurately (to set new passwords, see the next section, "[Changing WebTLC Passwords](#)").

3. Click **Login**.

The WebTLC web interface is displayed. The Status screen is displayed ([Figure 6-7 on page 6-7](#)). Use the buttons and links to navigate.

NOTE: After 15 minutes of inactivity, the web session is automatically logged out and the security level is reset to off. However, if the Status page has auto-refresh turned on, it will continue to stay active until you either log out or you view a different page for more than 15 minutes without activity.

Changing WebTLC Passwords

Access to the various WebTLC web pages is controlled by the level of security set when initially logging into the WebTLC:

- Web Level 1 (User) access – View Status and History screens only.
- Web Level 2 (Administrator) access – View, configure, and move media, set or change the user-level password, and use all WebTLC functions.

To change the WebTLC passwords:

1. From the NEO 2000E/4000E touch screen GUI, go to **Menu > Network**.
2. Press the **down-arrow (▼)** once.
The "Web Level 1 and FTP Login" and "Web Level 2 Login" options are shown.

3. Press a **login option** to edit the desired WebTLC password.
4. At the Web Level Login screen, enter the **new password**.
5. To confirm the new password, press **Re-Enter Login**.
The Re-enter Login field appears.
6. Enter the **new password** again, then press **OK**.
7. Press **Save**, then **OK** to confirm.
The WebTLC password change becomes effective when you reboot the library.
Refer to [“Reconfigure Library” on page 6-29](#) for details.

WebTLC Navigation

 **IMPORTANT:** Do not use the browser’s Back button to return to a previous screen. Always use the navigation buttons to ensure the dynamic data is refreshed and displayed correctly.

Each WebTLC page consists of two frames—a navigational frame on the top that contains the navigational buttons shown in [Figure 6-6](#), and a lower data frame, which displays the options available under the WebTLC function selected.



Figure 6-6: WebTLC Navigation Bar

The WebTLC navigation bar in the top frame provides easy access to web pages for viewing information and configuring options.

The library name is displayed directly below the navigation buttons. The default library name is “NEO Series.” For information on changing the library name, see [“Setting or Changing the Library Name” on page 5-3](#)

NOTE: If the library is busy, a message is displayed in the lower data frame below the navigation buttons and library name.

WebTLC Navigation and Security Access

Table 6-1 shows what options are available and the security levels required for accessing them.

Table 6-1: WebTLC Navigation Descriptions and Security Access

Options	Functionality	Access
Status Button	Displays visual representations of the drives and magazines, library status chart, and drive status charts. Holding the mouse over a media icon temporarily displays the bar code information. A drop-down list provides access to detailed drive and library data.	All Levels
Move Media Button	Lets you load or remove media from a tape drive, or move media to different slots within the library.	Web Level 2 only
Setup Button	Provides access to most library configuration parameters.	Web Level 2 only
Functions Button	Offers maintenance and diagnostic options for the library. Reboot and Reconfigure buttons are available on this screen.	Web Level 2 only
History Button	Gives you access to view or download library trace logs.	All Levels
Logout	Disconnects from WebTLC and resets the security level to off.	All Levels

WebTLC Usage General Steps

To change the WebTLC settings, follow these general steps:

1. Click the appropriate **navigation button** to display the item to be configured.



CAUTION: Clicking a button may cause the library to go offline, possibly interrupting host requests. Once you exit the menu item, the library automatically goes back online.

2. If the **Library to go Offline message** screen is displayed, do the following:
 - a. If desired, check **one** or **both** of the following options:
 - If you no longer want this message prompt to appear, check the **first** option ("Check to discontinue this prompt...").
 - If you want the function to be executed even if the library is busy, check the **second** option ("Check to execute the operation..."). This is not recommended while the host software is active.
 - b. To continue, click **Confirm** (or click **Cancel** to terminate the process).
3. Follow the onscreen instructions. In most cases, when you are done, click **Submit**.
If necessary, click a button on the main page to access a subpage of options.
4. To go back to the main menu page, click the **same navigational button** again.

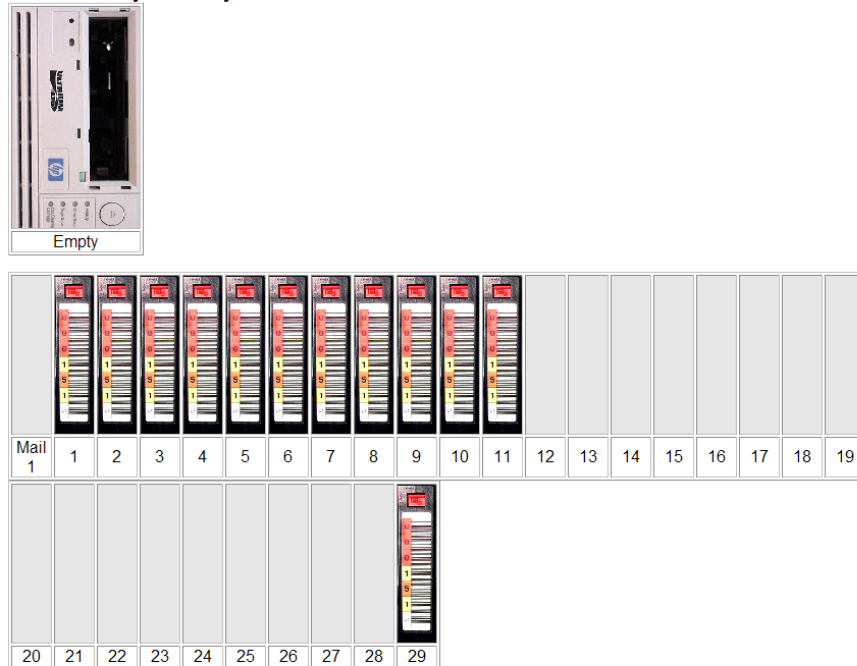
Status Button

The Status button displays visual representations of components, general information, statuses, and reports about the library (Figure 6-7). When necessary, you can scroll to see all the information on the page.

- Auto-Refresh: | Off | [1 min.](#) | [2 min.](#) | [5 min.](#) |
- Inventory Display: | Logical | [Physical](#) |

Status: Idle

Current Library Inventory



Library Status	
Serial Number	2B14807527
Firmware Revision	6.04
Hardware Revision	3
Boot Version	3
Library SCSI Id	6
Library Mode	Random
Library Status	Idle
Hours Since Power On	29

Drive 1 Status (Summary)	
Drive Type	HP LTO
SCSI ID	1
Compression On	YES
Tape Format	No tape
Tape Motion	--
Write Protected	--

FULL DRIVE STATUS

Click for Report



Figure 6-7: WebTLC Status Screen (NEO 2000E; Unpartitioned; Logical Display)

To change from the default Logical view to a Physical view, click the Physical link in the second bulleted item at the top of the display area.

NOTE: A Physical layout more clearly shows cartridge locations by displaying each magazine as its own component.

- Auto-Refresh: [Off](#) | [1 min](#) | [2 min](#) | [5 min](#) |
- Inventory Display: [Logical](#) | [Physical](#) |

Status: Idle

Current Library Inventory

Standalone



Library Status	
Serial Number	2B84100086
Firmware Revision	1.22

Figure 6-8: WebTLC Status Screen (NEO 4000E; Unpartitioned; Physical Display)

Table 6-2 provides details on the information presented on the Status screen:

Table 6-2: WebTLC Status Screen Features

Status	Description
Auto-Refresh Options	You can configure an automatic refresh setting for the Status screen. Options of 1-, 2-, or 5-minute refreshes are available. Default: Off
Inventory Display	You can configure the style of media display. Select Logical to show all the slots in order or Physical to shown the slots based on magazines and positions. Default: Logical
Current Library Inventory	Visual display of the magazines and drives showing the locations of the tape media. In some browsers, holding the mouse over the tape icon temporarily displays the actual bar code.
Library Status	Shows general information about the library and its firmware. See “Library Status Information” for more information.
Drive Status Summary	Displays a summary of key drive information for each drive. See “Drive Status Summary Table” for more information.

Library Status Information

The Library Status table shown on the Status page includes the current library state (Figure 6-9).

Library Status	
Serial Number	2B83100074
Firmware Revision	1.07
Hardware Revision	3
Boot Version	2
Library Mode	Random
Library Status	Idle
Hours Since Power On	0

Figure 6-9: Current Library Status Table

Drive Status Summary Table

Figure 6-10 shows the Drive Status (Summary) table on the Status page.

Drive 1 Status (Summary)	
Drive Type	HP LTO
WW Node Name	50:01:10:A0:01:33:DE:66
Drive State	Loaded
Tape Format	LTO-5
Write Protected?	NO
ADI Bridge	Enabled

Figure 6-10: Drive Status Table

NOTE: The information displayed in the Drive Status Table varies with the type of drive installed in the library.

Full Drive Status

To get a complete status on a drive in the library:

1. Log into WebTLC and click **Status**.
At the bottom of the Status screen, you will see the Full Drive Status button.
2. Click **Full Drive Status**.
3. From the Select Drive drop-down list, select a drive number, then click **Select Drive**.

The Full Drive Status table for the selected drive is displayed ([Figure 6-11](#)).

Drive 3 Status (Complete)	
Drive Identification	
Drive Type	LTO Gen. 4
Serial Number	HU1732081Y
Vendor ID	HP
Product ID	Ultrium 4-SCSI
Revision Level	A43H
Firmware Version	012.183
WW Node Name	50:06:0B:00:00:BB:10:96
Port 0 Hashed SAS Address	482EFA
Port 0 ID	50:06:0B:00:00:BB:10:94
Drive Status	
Media Status	Present/Seated/Threaded/Loaded
Activity	Loaded
Cleaning Status	None
Write Protected	No
Compression	Enabled
Media Removal	Allowed
Error Condition	No

Figure 6-11: Full Drive Status Table (SAS Drive)

The list of possible drive activity states are described in [Table 6-3](#).

Table 6-3: Tape Drive Activity Summary

Status	Description
Active	Other medium activity.
Calibrating	Calibrating medium.
Cleaning	Cleaning operation in progress.
Communication Error	Error communicating with the drive.
Erasing	Erasing medium.
Formatting	Formatting medium.
Hardware Error	There is an error in the drive hardware.
Idle	The drive is idle.
Initializing	The drive is initializing.
Loading	Medium is being loaded into the drive.
Locating	The drive can be instructed to space <i>n</i> data blocks or file marks without host intervention to reach a desired piece of data quickly.
Media Error	There is a pending error on the loaded medium.
No Tape	No tape inserted.
Not Installed	No drive is present.
Rd Encrypt	Reading encrypted data.
Reading	Reading from medium.

Table 6-3: Tape Drive Activity Summary (Continued)

Status	Description
Rewinding	Rewinding medium.
Unknown	Undefined drive activity.
Unloading	Medium is being unloaded from the drive.
Updating Code	Drive firmware is being flashed to the drive.
Uploading code	The drive has its own firmware, which is maintained by the drive manufacturer. This status indicates that the drive firmware is being uploaded to the drive. This is the status from running Functions > Drive Flash Operation .
Wr Encrypt	Writing encrypted data.
Writing	Writing to medium.

To view the full status of another drive, select its number from the drop-down list at the bottom and click **Select Drive**.

Move Media Button

NOTE: Web Level 2 security is required to access the WebTLC Move Media screen.

The Move Media button lets you move a selected cartridge to a target drive or cartridge slot using drop-down lists showing available sources and destinations.

Moving a Tape Cartridge (No Partitioning)

To move a tape cartridge in a library with no partitioning:

1. Access **WebTLC**.
2. Select the **Move Media** button.

Figure 6-12 shows the Move a Tape Cartridge dialog:

Figure 6-12: Move a Tape Cartridge (No Partition) Dialog Box

3. Select the **Move a Tape Cartridge** options:
 - a. From the **Source** drop-down list, choose the slot or drive where the source tape cartridge is currently located.
 - b. From the **Destination** drop-down list, choose the destination slot or drive.

4. Click **Execute the Move**, then click **Confirm**.

During the move operation, updates are displayed every five seconds. After the move is completed, a final status message is displayed:

“The cartridge move operation was completed successfully.”

5. Click the **Status** button to view the results of the move operation or **Move Media** to move another tape.

Moving a Tape Cartridge (Partitioned)

To move a tape cartridge in a library with partitioning configured:

1. Access **WebTLC**.
2. Select the **Move Media** button.

[Figure 6-13](#) shows the Move a Tape Cartridge dialog:

Figure 6-13: Move a Tape Cartridge (Partitioned) Dialog Box

3. Select a partition number from the drop-down list, then click **Select Partition**.
The Move a Tape Cartridge in Partition n dialog box appears, where n is the number of the partition selected in Step 3 ([Figure 6-14 on page 6-12](#)).

Figure 6-14: Move a Tape Cartridge in Partition Dialog Box

4. From the **Move a Tape Cartridge in Partition n** dialog box:
 - a. From the **Source** drop-down list, choose the slot or drive of the source tape cartridge.
 - b. From the **Destination** drop-down list, choose the destination slot or drive.
5. Click **Execute the Move**, then click **Confirm**.
During the move operation, updates are displayed every five seconds. After the move is completed, a final status message is displayed:
“The cartridge move operation was completed successfully.”
6. To view the results of the move operation, click the **Status** button.

Setup Button

NOTE: Web Level 2 security is required to access the WebTLC Setup screens.

The **Setup** button lets you configure these nonvolatile library options:

- [Library Configuration](#)
- [Partition Configuration / Disable Partitions](#)
(requires a Feature Key, purchased separately)
- [SCSI Configuration](#)
- [Drive Configuration](#)
- [Feature Key Configuration](#)
- [Notification Registration](#)

WebTLC Configuration Menu

To access the WebTLC Configuration menu:

1. Log into WebTLC and click **Setup**.

The WebTLC Configuration menu is displayed ([Figure 6-15 on page 6-13](#)).

The library configuration options and settings correspond to the options and settings available through the touch screen GUI when you go to **Menu**.

NOTE: The second item, Partition Configuration, changes based on whether a Feature Key has been entered and the partitioning configuration status (see [Figure 6-15](#), [Figure 6-16](#), and [Figure 6-17 on page 6-14](#)).

Configuration Menu	
Library Configuration Set basic library parameters such as random/sequential mode, mail slot mode, auto clean mode.	Library Config
Partition Configuration Set partition parameters.	Feature Disabled
SCSI Configuration Set SCSI mode parameters and Tape Alert parameters.	SCSI Config
Drive Configuration Set configuration parameters for the drives.	Drive Config
Feature Key Configuration Enter a library feature key.	Feature Key
Notification Registration Register to receive exception reports via e-mail and/or SNMP traps.	Notifications

Figure 6-15: Configuration Menu (Partitioning Not Configured)

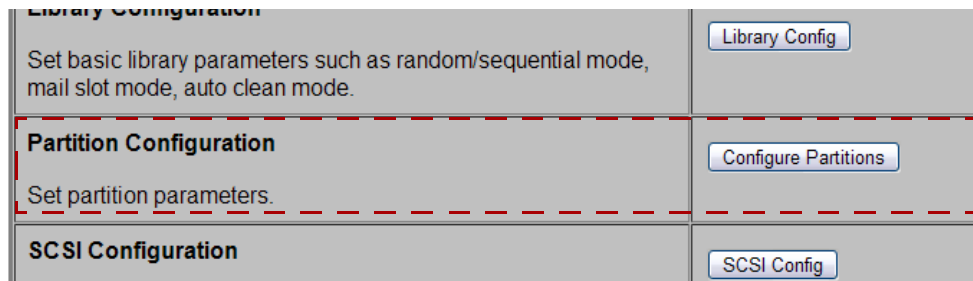


Figure 6-16: Partial Configuration Menu (Partitioning Feature Key Entered)

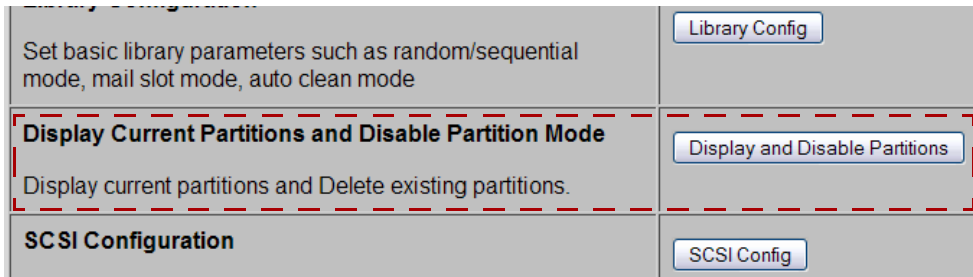


Figure 6-17: Partial Configuration Menu (Partitioning Configured)

- Click one of the configuration **buttons** on the menu to open a configuration subpage to view or change parameters.



IMPORTANT: Some changes automatically cause the library to reboot. If any other changes are made that specify that they are **not effective** until the library is rebooted, you must reboot the library manually. Use the **Reboot Library** button at the bottom of the Functions page.

NOTE: If you have not disabled the Offline Confirmation prompt, it will appear the first time you access any of the configuration options under Setup. Click **OK** to continue.

Library Configuration

To configure the library settings:

- Log into WebTLC and click **Setup**.
The WebTLC Configuration menu is displayed.
- Click **Library Config**.
The Library Configuration menu is displayed ([Figure 6-18](#)).

Library Configuration	
Library Mode:	Random
Auto Clean Mode:	Disabled
Reserved Slots:	0
Unload Mode:	Implicit
Auto-Install a Drive:	Enabled
Mail Slot Mode: Both Single Mail Slots Enabled	
Drive and Slot Numbering: One Based	
Bar Code Label Size:	8 Chars
Bar Code Label Alignment:	Left Align
Bar Code Label Check Digit:	Disabled
Bar Code Reader:	Retries Enabled
Drive Used for Bridging: 1	
Auto Power-On: Enabled	
CAUTION: Library reboots once Submit is pressed.	
Submit Reset	

Figure 6-18: Library Configuration Menu (No Partitions)

If partitioned, some items are not shown or not available ([Figure 6-19](#)).

Library Configuration	
Auto Clean Mode:	Disabled
Reserved Slot configuration unavailable while library is partitioned. (Configure reserved slots before configuring partitions.)	
Reserved Slots:	0
Unload Mode:	Implicit
Auto-Install a Drive:	Enabled
Mail Slot configuration unavailable while library is partitioned. (Configured in partitions setup.)	
Mail Slot Mode:	Partition configuration
Drive and Slot Numbering: One Based	
Bar Code Label Size:	8 Chars
Bar Code Label Alignment:	Left Align
Bar Code Label Check Digit:	Disabled
Bar Code Reader:	Retries Enabled
Auto Power-On: Disabled	
CAUTION: Library reboots once Submit is pressed.	
Submit Reset	

Figure 6-19: Library Configuration Menu (Partitioned)

3. Change the library settings as necessary. When satisfied with the changes, click **Submit**.

The library reboots. Wait for POST to complete.

4. If WebTLC is configured to obtain an IP address from a DHCP server, note the new IP address by pressing Menu > Library Info, then log in to **WebTLC** again.

Table 6-4 below describes the library configuration options available:

Table 6-4: WebTLC Library Configuration Options

Library Option	Description				
Library Mode	Set the operating mode to Random or one of these sequential modes: • Sequential Drv 1 • Sequential Drv 2 (if installed) • Sequential Drv 3 (if installed, NEO 4000E only) • Sequential Drv 4 (if installed, NEO 4000E only) • Sequential Split (if two or more drives installed) Sequential Modes use only one magazine per drive. Random is the normal operating mode that gives complete control of the library to the host software. Sequential Mode is locally controlled. Begin by using the GUI Move Media command to load the first cartridge of the sequence into the drive. When the host unloads the cartridge from the drive, it is returned to the slot and the next cartridge is loaded in magazine numerical order. This continues until all of the cartridges have been loaded, an empty slot is encountered, or the GUI is used to unload a tape from the drive. In Sequential Split mode, magazines and drives are paired as follows: <table> <tr> <td>NEO 2000E</td><td>Left Magazine – Drive 1 Right Magazine – Drive 2</td></tr> <tr> <td>NEO 4000E</td><td>Upper Left Magazine – Drive 1 Upper Right Magazine – Drive 2 Lower Left Magazine – Drive 3 Lower Right Magazine – Drive 4</td></tr> </table> Sequential Mode limitations: • There is no host access to the library robotics. • Cannot be used with a partitioned library. • Cannot be used with multi-module configurations. • Mail slots cannot be used. • Reserved slots and Auto Cleaning cannot be used. • Move media, drive cleaning and diagnostics are not available in WebTLC. • If a drive signals cleaning is required, the sequential operation is terminated. Default: Random	NEO 2000E	Left Magazine – Drive 1 Right Magazine – Drive 2	NEO 4000E	Upper Left Magazine – Drive 1 Upper Right Magazine – Drive 2 Lower Left Magazine – Drive 3 Lower Right Magazine – Drive 4
NEO 2000E	Left Magazine – Drive 1 Right Magazine – Drive 2				
NEO 4000E	Upper Left Magazine – Drive 1 Upper Right Magazine – Drive 2 Lower Left Magazine – Drive 3 Lower Right Magazine – Drive 4				

Table 6-4: WebTLC Library Configuration Options (Continued)

Library Option	Description
Sequential Mode	If the Library Mode is set to one of the sequential settings, you use this option to set the sequential operation to Normal, Recirculate, or Autoloader mode. Normal Mode: Operates as described above in Library Mode. Recirculate Mode: Instead of stopping after the cartridge in the last slot for the drive has been unloaded by the host, the operation continues by loading the first cartridge in the magazine. Recirculate will continue until an empty slot is encountered or the operator unloads the tape using the touch screen GUI. Autoloader Mode: This mode will skip any empty slots in the magazine by continuing with the next available cartridge in the magazine and stops only when the last cartridge has been loaded. Default: Normal
Auto Clean Mode	Select either Enabled or Disabled from the drop-down list to activate this feature. A cleaning cartridge must be in a reserved slot for this feature to function. Default: Disabled
Reserved Slots	NOTE: If the library is to be partitioned, the reserved slots must be configured before partitioning. You can reserve up to 15 slots. The slots are reserved from the last available slot forward, and are numbered with <i>CIng</i> prefix (Cleaning) on the Status page physical inventory display. The reserved slots can be used to either store cleaning cartridges or reduce the number of active slots to meet host software requirements since they are not visible to the host. NOTE: Reserved cleaning slots are allocated from the last magazine of the master module or a standalone module. If reserved cleaning slots are configured for a partitioned library, they are available from any partition. Cartridges can be transferred between partitions using a reserved cleaning slot as an intermediary. Reserved slots do not appear in the WebTLC Logical Status view. Moves must be done manually using either the GUI or WebTLC. Default: 0
Unload Mode	Choose from either Implicit (no <i>Unload</i> command) or Explicit (separate <i>Unload</i> command to drive) to match the host application. Default: Implicit
Auto-Install a Drive	Permits automatic installation of new drives as they are detected. If disabled, new drives can be explicitly installed using the GUI. Choose from either Enabled or Disabled. Default: Enabled

Table 6-4: WebTLC Library Configuration Options (Continued)

Library Option	Description
Mail Slot Mode	Select the Mail Slot configuration of the left magazines. For multi-module systems, the mail slots in the master and each slave module can be individually configured. Disabled mail slots are enabled as data cartridge slots. Only left magazines can be configured for mail slots. NOTE: If the library is partitioned, the Mail Slot setup is handled by the partition wizard. See Chapter 8, "Partitioning." NEO 2000E Default: Single Mail Slot Enabled NEO 4000E Default: Both Single Mail Slots Enabled
Drive and Slot Numbering	Determine if the drives and slots are numbered starting at either one or zero. Default: One Based
Bar Code Label Size	Choose the number of characters from the bar code labels actually used by the library. The range is 1–8 characters. Default: 8 Chars
Bar Code Label Alignment	Specify Left Aligned or Right Aligned bar code label alignment. If there are more characters in the bar code than configured as the maximum number, only the specified number of characters are reported as read from either the left or right end of the bar code based on this setting. Default: Left Align
Bar Code Label Check Digit	Choose one of these settings for the bar code check digit: • Disabled • Enable Check, Send • Enable Check, Don't Send Default: Disabled
Bar Code Reader	Select to either enable or disable the bar code reader from retrying to read a bar code label. Default: Retries Enabled
Drive Used for Bridging	NOTE: This option is not available on single-drive or partitioned libraries. Select the drive in a multi-drive system that is used for LUN 1 bridging of the library robotics controller to the host system. Default: 1
Auto Power-On	Enable or disable the auto power-on feature. When enabled, if the power is interrupted, the library will automatically power up and go online when the power is restored. The setting for this option does not change when Set User Defaults is selected. Default: Enabled

Partition Configuration / Disable Partitions

Before you can partition your NEO library, you must purchase the feature key license for library partitioning from Overland Storage. If partitioning was purchased with the library, it is already in place. Once you have entered the feature key number, you can enable partitioning.

Refer to [Chapter 8, “Partitioning,”](#) for detailed information on adding and removing partitions.

SCSI Configuration

To view or modify the SCSI configuration settings in WebTLC, follow these steps:

1. Log into **WebTLC** and click **Setup**.
The WebTLC Configuration menu is displayed.
2. Click **SCSI Config**, then click **Confirm**.
The SCSI Configuration screen is displayed ([Figure 6-20](#)).
3. Make any necessary configuration changes, then click **Submit**.
Refer to [Table 6-5](#) below for descriptions of the SCSI configuration options.

SCSI Configuration	
Mail Slot Access:	"Prevent Allow" Command Inhibits ▼
Vendor Identification:	OVERLAND ▼
Custom Vendor Identification:	
Product Identification:	NEO Series ▼
Custom Product Identification:	
Device Capability Page Length:	Short (14 bytes) ▼
Init Element Status:	No Inventory ▼
Element Base:	One Based ▼
SCSI Transport Element:	Single ▼
Report Element Type:	Disabled ▼
Post Recovered Errors:	Disabled ▼
TapeAlert Mode:	Logging Disabled ▼
Submit Reset	

Figure 6-20: SCSI Configuration Screen

[Table 6-5](#) describes the SCSI setup options available through WebTLC.

Table 6-5: WebTLC SCSI Configuration Options

Component	Description
Mail Slot Access	Determine whether a host Prevent Allow Medium Removal command inhibits or allows an operator access to the mail slot magazine. You can set it to inhibit access or be ignored. Default: "Prevent Allow" Command Inhibits
Vendor Identification	Specifies the response to the Vendor ID field of the SCSI INQUIRY command. The choices are OVERLAND or a custom ID (Vendor Unique).
Custom Vendor Identification	The custom vendor ID is entered in the second field. The vendor ID must be exactly eight characters long so spaces are appended to the end of a shorter ID. Default: OVERLAND
Product Identification	Specifies the response to the Product ID field of the SCSI INQUIRY command. The choices are NEO Series, LXB, or a custom ID (Vendor Unique).
Custom Product Identification	The custom product ID is entered in the second field. The ID must be exactly 16 characters long so spaces are appended to the end of a shorter ID. Default: NEO Series
Device Capability Page Length	Choose between Short (14 bytes) and Long (18 bytes) lengths of the Mode Sense/Select Device Capabilities Page (SCSI page 1Fh) to accommodate different SCSI device implementations. Default: Short (14 bytes)
Init(ialize) Element Status	Specifies the library's response to the SCSI Initialize Element Status command. The possible settings are No Inventory , Force Inventory , and Force Label Scan . No Inventory option sends the inventory data currently stored in the controller memory. Default: No Inventory
Element Base	Choose the element numbering option. Zero-based numbering starts the first element in each region at 0, while One-based numbering starts each element at 1 and increments. This allows an application to show inventories in the user's preferred view. Default: One Based
SCSI Transport Element	Reports either a Single or Multiple transport element. Default: Single
Report Element Type	Determines the method to report the type of library elements installed (LTO drives) using the SCSI Read Element Status command. The options are Disabled or Enabled . Select Disabled for the standard method that uses the DVCID CDB field. Select Enabled to use the vendor-specific field in the Element Descriptor. Default: Disabled

Table 6-5: WebTLC SCSI Configuration Options (Continued)

Component	Description
Post Recovered Errors	Enable or disable the reporting of TapeAlert informational exception conditions with a Recovered Error sense key, when the Method of Reporting Information Exceptions (MRIE) field is set to a value of 0x3 in Mode Page 1Ch, or if the TapeAlert Mode option is set to Rec. Error (cnd). Default: Disabled
TapeAlert Mode	Specifies conditions for logging and reporting the following TapeAlert data options: • Logging Disabled—Inhibits the logging feature. • No Exceptions—Information exceptions are not reported. • Generate Unit Attention—Reports information exceptions with a Unit Attention sense key and an ASC/ASCQ of 5D/00. • Conditionally Generate Recovered Error—If Post Recovered Errors is enabled, reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • Unconditionally Generate Recovered Error—Unconditionally reports information exceptions with a Recovered Error sense key and an ASC/ASCQ of 5D/00. • Generate No Sense—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00. • Report on Unsolicited Request Sense—Reports information exceptions with a No Sense sense key and an ASC/ASCQ of 5D/00 only in response to an unsolicited Request Sense command. Default: Logging Disabled

Drive Configuration

NOTE: There are no configuration settings for SAS drives.

To view or modify the drive configuration settings in WebTLC:

1. Log into **WebTLC** and click **Setup**.
The WebTLC Configuration menu is displayed.
2. Click **Drive Configuration**.
The Configure a Tape Drive screen is displayed ([Figure 6-21](#)).

Figure 6-21: Drive Number Configuration Screen

3. From the **Drive Number** drop-down list, select the drive you wish to configure.

4. Click **Select the Drive to be Configured**.

- If the drive to be configured is a **SCSI drive**, the screen shown in [Figure 6-22](#) is displayed. From the SCSI ID drop-down list, select the SCSI ID number, then click **Submit**.

Figure 6-22: SCSI ID Drive Configuration Screen

- If the drive to be configured is a **Fibre Channel drive**, the screen shown in [Figure 6-23](#) is displayed. Enter the configuration information for each field, then click **Submit**.

Figure 6-23: Fibre Channel Drive Configuration Screen

Refer to [Table 6-6](#) below for information on the Fibre Channel drive options available and their functionality.

Table 6-6: Fibre Channel Drive Configuration Options

Option	Description
Port 0 Control	Specifies the method for setting the AL-PA. The settings are Disable, Soft Address, and Hard Address. When Hard Address is selected, the Port 0 Hard Loop ID is enabled to select a valid Loop ID. Default: Soft Address
Port 0 Hard Loop ID	Specifies the Loop ID that the tape drive uses to determine the AL-PA hard address for the port. The possible settings are 1-125. NOTE: This option requires Hard Address to be selected in the Port 0 Control option. Default: 1

Table 6-6: Fibre Channel Drive Configuration Options (Continued)

Option	Description
World Wide Port 0 Name	Select Default or Custom to set the World Wide Port Name (WWPN). The Default setting uses the factory-configured WWPN while Custom allows you to create a unique name for Port 0 using the Custom WW Port 0 Name option. Default: Default
Custom WW Port 0 Name	Create a unique World Wide Port Name for Port 0. To use this option, World Wide Port 0 Name must be set to Custom. Used to allow the WWPN from a removed or replaced drive to be reused to save configuration time. Default: 00:00:00:00:00:00:00:00
World Wide Node Name	Select Default or Custom to set the World Wide Node Name (WWNN). The Default setting uses the factory-configured WWNN while Custom allows you to create a unique name for the drive. Default: Default
Custom WW Node Name	Create a unique World Wide Node Name for Port 0. To use this option, World Wide Node Name must be set to Custom. Used to allow the WWNN from a removed or replaced drive to be reused to save configuration time. Default: 00:00:00:00:00:00:00:00
Topology	Specifies the topology used by the Fibre Channel ports. The four options are: Use Loop , Allow Point-to-Point , Use Point-to-Point , Allow Loop , Force Loop , or Force Point-to-Point . Default: Use Loop, Allow Point-to-Point
Speed	Sets the link speed in gigabits per second used by the Fibre Channel ports. The options are: Auto , 1 Gb/sec. , 2 Gb/sec. , 4 Gb/sec. , or 8 Gb/sec (depending on drive types installed). In Auto mode, the drive negotiates the speed with the host. Default: Auto

Feature Key Configuration

1. Log into **WebTLC** and click **Setup**.
The WebTLC Configuration menu is displayed.
2. Click **Feature Key**, then click **Confirm**.
The Feature Key Configuration screen is displayed ([Figure 6-24](#)).

The screenshot shows a web interface window titled "Feature Key Configuration". Inside the window, there is a label "Key:" followed by a text input field. Below the input field, there are two buttons: "Submit" and "Reset".

Figure 6-24: Entering the Feature Key for Partitioning

3. Enter the **partitioning key** in the field provided.

You must enter the full 32-digit key; hyphens and spaces are ignored. It is recommended that the key be cut and pasted from the notification e-mail.

4. Click **Submit**.

The feature is enabled on your library and the library is automatically rebooted.

Notification Registration



IMPORTANT: Simple Network Management Protocol (SNMP) trap addresses and e-mail settings are network specific. Contact your network system administrator for the appropriate values.

Clicking the Notifications button in the Setup menu displays a screen (Figure 6-25) to configure the library for sending out e-mail messages and significant system event notifications to the network management system (NMS). You can control the SNMP protocol used and the scope of the events that trigger the messages. Changes take place immediately.

E-mail Addresses

Enter the e-mail server address as a name (xyz.com) or as an IP address (www.xxx.yyy.zzz).

Enter e-mail addresses as ASCII strings (myname@mydomain.com).

Server address:

E-mail addr. 1:

E-mail addr. 2:

E-mail addr. 3:

E-mail addr. 4:

Return address:

SNMP Configuration

Enter trap addresses as IP address strings (www.xxx.yyy.zzz).

SNMP trap address 1:

SNMP trap address 2:

SNMP trap address 3:

SNMP trap address 4:

SNMP Version:

Trap Filter:

Trap Community Name:

Get Community Name:

Set Community Name:

Figure 6-25: Notification Registration Configuration Screen

To set up notification registration settings in WebTLC:

1. Log into **WebTLC** and click **Setup**.
The WebTLC Configuration menu is displayed.
2. Click **Notification Registration**.
The Notification Registration screen is displayed.
3. Make any necessary configuration changes, then click **Submit**.
Refer to [Table 6-7](#) below for detailed information on the notification registration options.
4. To test the warning level and e-mail settings, open and close a door on the library.
E-mails are generated and should appear in the Inbox of the address configured to receive notices and event messages.

[Table 6-7](#) describes the Notification Registration options.

Table 6-7: Notification Registration Options

Option	Description
Server Address	Enter the address of the SMTP mail server either as a hostname or an IP address. Default: <blank>
E-mail Addr. <i>n</i> (<i>n</i> =1 to 4)	Enter up to four addresses to receive e-mail event messages. Default: <blank>
Return Address	Enter the e-mail address that will be used as the return address for the event messages and e-mails. Default: webtlc@neo
SNMP Trap Address <i>n</i> (<i>n</i> =1 to 4)	Enter the IP addresses of up to four hosts that can receive SNMP traps. Default: 255.255.255.255
SNMP Version	Select the trap protocol of SNMPv1 or Disabled from the drop-down list. Default: SNMPv1
Trap Filter	Select the level of severity filter for the notifications from the drop-down list. The selections are: • Informational, Warning and Critical • Warning and Critical • Critical Only. Default: Informational, Warning and Critical
Trap Community Name	Enter the authentication for using Trap commands. Default: private-traps
Get Community Name	Enter the authentication for using Get commands. Default: public
Set Community Name	Enter the authentication for using Set commands. Default: private

Functions Button

NOTE: Web Level 2 security is required to access the WebTLC Function screens.

The Functions button provides six operations:

- [Perform a Drive Cleaning Operation](#)
- [Perform a Timed or Free-Running Library Diagnostic](#)
- [Library Flash Operation \(Firmware Updates\)](#)
- [Drive Flash Operation \(Firmware Updates\)](#)
- [Reboot Library](#)
- [Reconfigure Library](#)

Perform a Drive Cleaning Operation

You can either store a cleaning cartridge in a reserved slot or insert one when needed in a Mail Slot. If no reserved slots are configured, a cleaning cartridge can be stored in a regular slot.

 **CAUTION:** Perform a Clean Drive option **ONLY** when the library displays a message informing you that a drive needs cleaning. Because a cleaning cartridge is abrasive, excessive cleaning can shorten the life of a drive.

NOTE: The drive being cleaned must be empty of all tape cartridges before cleaning the drive.

1. If necessary, remove the **media** from the drive to be cleaned.
2. Verify that a **cleaning cartridge** is loaded in the library.
3. Access **WebTLC**, then click **Functions**.

The Perform a Drive Cleaning Operation dialog box is displayed (Figure 6-26).



The dialog box titled "Perform a Drive Cleaning Operation" contains two dropdown menus. The first is labeled "Source of Cleaning Tape:" and has "Slot 1" selected. The second is labeled "Drive(s) to Clean:" and has "Drive 1" selected. Below these menus is a button labeled "Execute the Clean".

Figure 6-26: Perform a Drive Cleaning Operation Dialog Box

4. If the library is partitioned, select the partition number, then click **Continue**.
5. Specify the **source** of the cleaning tape and the **destination** drive.
 - From the **Source of Cleaning Tape** drop-down list, select the slot where the cleaning tape is located.
 - From the **Drive(s) to Clean** drop-down list, select the drive to be cleaned.
6. Click **Execute the Clean**, then click **Confirm**.

When the cleaning cycle is finished, the library returns the cleaning cartridge back to its original slot.

Perform a Timed or Free-Running Library Diagnostic

The Library Diagnostic tests the library's operational mechanisms to make sure they are running and operating properly. Two library diagnostic tests are available:

- **Cartridge Cycle:** Randomly fetches cartridges from slots and stows them in different slots.
- **Drive Cycle:** Randomly fetches cartridges from slots and inserts them into a drive.

After running both of the library diagnostics, the library performs an inventory to update the library's cartridge map.

To run a library diagnostic:

1. Access **WebTLC**, then click **Functions**.

The Library Diagnostic dialog box is displayed (Figure 6-27).



Figure 6-27: Library Diagnostic Dialog Box

2. From the drop-down menu, select which diagnostic to run (**Cartridge Cycle** or **Drive Cycle**).
3. Specify the time to run the diagnostic.

The **Time to Run** options you can select are:

- 1 minute (the default)
- 5 minutes
- 10 minutes
- 30 minutes
- 1 hour
- 2 hours
- 5 hours
- No Time Limit

4. Click **Start the Diagnostic**.

- When a timed diagnostic is finished running, you receive the following message: "The Cartridge/Drive Cycle diagnostic has successfully run to completion."
- For a free-running diagnostic, it will continue until you click the **Stop the Diagnostic** button that is displayed.

Library Flash Operation (Firmware Updates)

The Library Flash Operation provides a way to update a library's firmware from either the remote Overland FTP site or locally.

To install the latest library firmware update on your NEO 2000E or NEO 4000E library:

1. Access **WebTLC**, then click **Functions**.

The Library Flash Operation dialog box is displayed ([Figure 6-28](#)).



Figure 6-28: Updating Library Firmware in WebTLC

2. From the Flash Operation drop-down menu, select whether to update the library's firmware from a remote file or a local file:
 - The **remote** option (**Flash Library from Remote File**) accesses Overland Storage's FTP site where the library and drive firmware are located.
 - The **local** option (**Flash Library from Local File**) accesses the NEO's internal file storage area. The upgrade file needs to be manually uploaded into the NEO via FTP before selecting the local option. If necessary, contact Overland Technical Support for assistance.

NOTE: If Local file is selected and no file is present, an error message is displayed. The Local file is automatically deleted after use to conserve space.

3. Click **Start the Flash**.
4. Click the appropriate file, and then click **Confirm**.

The library reboots after the firmware update has successfully completed.

Drive Flash Operation (Firmware Updates)

The Drive Flash Operation provides a way to update a drive's firmware either from the remote Overland FTP site or locally. The Drive Flash Operation provides local and remote options individually for each drive or lets you use one option for all of the drives at once.

To download the latest firmware for the drives in your NEO 2000E or NEO 4000E library:

1. Access **WebTLC**, then click **Functions**.

The Drive Flash Operation dialog box is displayed ([Figure 6-29](#)).

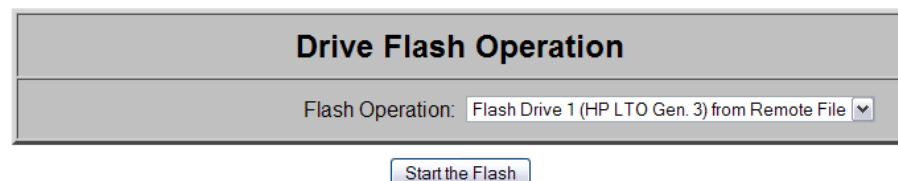


Figure 6-29: Updating Drive Firmware in WebTLC

2. From the **Drive Flash Operation** drop-down menu, select to update either a single drive or all drives (if all drives are the same type) using either the Local File or Remote File option.
 - The **remote** options access Overland Storage's FTP site where the library and drive firmware are located.
 - The **local** options access the NEO's internal file storage area. The upgrade file needs to be manually uploaded into the NEO via FTP before selecting the local option. If necessary, contact Overland Technical Support for assistance.

NOTE: If Local file is selected and no file is present, an error message is displayed. The Local file is automatically deleted after use to conserve space.

3. Click **Start the Flash**.

When the operation is complete, the library reboots. When the reboot is done, you can log back into WebTLC.

Reboot Library

When you choose to reboot the library, the library performs a full, normal reboot after completing any cartridge move that was in progress:

1. Access **WebTLC**, then click **Functions**.
2. Click **Reboot Library**.

The Reboot Library button is located at the bottom of the Functions page.

Reconfigure Library

The Reconfigure Library button appears only if the library is:

- A Master or Alternate Master in a multi-module configuration.
- A Standalone configuration which has been partitioned.

Unpartitioned Standalone units and Master units without a pass-thru elevator attached (Standby Masters) do not show the button.

The button is used to reset the library configuration after permanently removing a drive or library module.

NOTE: NEO 2000E and 4000E libraries automatically reconfigure themselves when a new drive or library module is added. For a partitioned library, you must disable partitioning, add the drive or library module, and then reconfigure partitioning to add the drive or module to the correct partition.

When you choose to reconfigure the library, the library performs a full, normal reboot after completing any cartridge move that was in progress.

To reconfigure the library:

1. Access **WebTLC**, then click **Functions**.
2. At the bottom of the Functions page, click **Reconfigure Library**.
The library reboots.

History Button

The History button provides access to service-related options such as viewing the library trace logs. The trace log options let you either view a trace log on-screen or download it as a file.



IMPORTANT: A Library Trace log should be saved every time changes are made to the configuration in the event the information is needed, particularly should the chassis or controller card be swapped out.

Display a Library Trace Log

To display a library trace file in your web browser:

1. Log into **WebTLC** and click **History**.

The following History options are displayed (Figure 6-30):

Display a Library Trace Log

Library Trace ▼ Display Trace

Download a Binary Trace File from the Library

[Library Trace file \(406596 bytes\)](#)

Figure 6-30: WebTLC History Options

2. Click **Display Trace**.

A full trace file is created and displayed in the web browser. Use the web browser's Print option to make a hard copy of the information.

Download a Full Binary Trace File

With this option, you can download a full library trace file in binary format to your computer.

To download a full library trace file:

1. Log into **WebTLC** and click **History**.
2. Click the **Library Trace File** link.

A Save As window appears, letting you select a network destination for the download.



Cleaning Library Tape Drives

 **CAUTION:** Perform a Clean Drive option **ONLY** when the library displays a message informing you that a drive needs cleaning. Because a cleaning cartridge is abrasive, excessive cleaning can shorten the life of a drive.

Most backup software now manages the automatic cleaning of library tape drives as a normal part of operations. It is recommended to use that process if available. If it doesn't exist, the NEO Series library has options to either manually or automatically clean a tape drive.

 **IMPORTANT:** The Maintenance option is designed for use by Overland Authorized Service Technicians. With the exception of Clean Drive, it is not recommended for access by end users.

There are two ways to manage the cleaning of the installed tape drives:

- Manually:
 - At the GUI, press **Menu > Maintenance > Clean Drive**.
 - In WebTLC, select **Functions > Perform a Drive Cleaning Operation**.
- Automatically enable **Auto Clean Mode**:
 - From the GUI, it is located under **Menu > Library Options**.
 - From WebTLC, it is located under **Setup > Library Config**.

NOTE: The Auto Clean Mode requires a minimum of one reserved slot for storing the cleaning tape.

Manually Running a Cleaning Cartridge

A cleaning cartridge can be installed and run from one of three locations:

- *Mail Slot:* This location has the advantage of not needing to use a data cartridge slot or to reserve a cleaning cartridge slot.
- *Data Cartridge Slot:* This location requires inserting a cleaning cartridge into a data cartridge slot and then removing it after cleaning.

- *Reserved Slot:* This location requires reserving a Data Cartridge Slot for exclusive use as a cleaning cartridge slot. The advantage with this method is that the cleaning cartridge is stored in the library and is always available for use. It only needs to be handled when the cartridge needs to be replaced. Also, by having multiple cleaning cartridges in several slots, the Auto Clean option will check each on until it finds an unexpired tape (or comes to the end or empty slot). See “[Setting up Reserved Slots](#)” on page 3-5 for more information.

NOTE: When pressing the Source or Cleaning locations, you can repeatedly press the **Element Type** button to cycle through all the available choices. You can also use the decimal keypad to enter the choice number directly into the field.

Running a Cleaning Cartridge from the Mail Slot

To run a cleaning cartridge from the Mail Slot:

1. Install a cleaning cartridge into a Mail Slot.
2. Go to the **Cleaning** option:
 - From the GUI screen, press **Menu > Maintenance > Clean Drive**.
 - From WebTLC, select **Function > Perform a Drive Cleaning Operation**
3. Choose the **Source**:
 - From the GUI, press the **Source** select field, and then press **Mail Slot**.
 - From WebTLC, select **Mail Slot** from the drop-down list.
4. Select the **Drive**:
 - From the GUI, press the **Cleaning** select field, and press **Drive** in the Destination Element Type area until the drive needing cleaning is shown.
 - From WebTLC, select the specific **Drive** from the drop-down list.
5. Press/click **Execute (the) Clean**.

When the cleaning cycle completes, the library returns the cleaning cartridge back to the Mail Slot and the display returns to the Maintenance options screen.
6. If using the GUI, press **Back** twice to return to the Default screen.
7. Use the GUI's **Mail Slot Access** option, remove the cleaning cartridge.

Running a Cleaning Cartridge from a Data Cartridge Slot

To run a cleaning cartridge from a data cartridge slot:

1. Install a **cleaning cartridge** into a data cartridge slot (Slot 4, for example).
2. Go to the **Cleaning** option:
 - From the GUI screen, press **Menu > Maintenance > Clean Drive**.
 - From WebTLC, select **Function > Perform a Drive Cleaning Operation**
3. Choose the **Source**:
 - From the GUI, press the **Source** select field, and then press **Slot** until the slot with the cleaning tape is shown.
 - From WebTLC, select the appropriate **Slot** from the drop-down list.
4. Select the **Drive**:

- From the GUI, press the **Cleaning** select field, and press **Drive** in the Destination Element Type area until the drive needing cleaning is shown.
 - From WebTLC, select the specific **Drive** from the drop-down list.
5. Press/click **Execute (the) Clean**.
When the cleaning cycle completes, the library returns the cleaning cartridge back to the Mail Slot and the display returns to the Maintenance options screen.
 6. If using the GUI, press **Back** twice to return to the Default screen.
 7. Use either the GUI's **Mail Slot Access** option or WebTLC's **Move Media** option, remove the cleaning cartridge.

Running a Cleaning Cartridge from the Cleaning Cartridge Slot

To run a cleaning cartridge from the cleaning cartridge slot:

1. Reserve one or more cleaning cartridge slots:
 - From the GUI, use **Menu > Library > Total Reserved Slots**.
 - From WebTLC, **Setup > Library Config > Reserved Slots**.
2. Install a **cleaning cartridge** into a reserved slot.
3. Go to the **Cleaning** option:
 - From the GUI screen, press **Menu > Maintenance > Clean Drive**.
 - From WebTLC, select **Function > Perform a Drive Cleaning Operation**
4. Choose the **Source**:
 - From the GUI, press the **Source** select field, and then press **Cleaning Slot**.
 - From WebTLC, select **Cleaning Slot** from the drop-down list.
5. Select the **Drive**:
 - From the GUI, press the **Cleaning** select field, and press **Drive** in the Destination Element Type area until the drive needing cleaning is shown.
 - From WebTLC, select the specific **Drive** from the drop-down list.
6. Press/click **Execute (the) Clean**.
When the cleaning cycle completes, the library returns the cleaning cartridge back to the Mail Slot and the display returns to the Maintenance options screen.
7. If using the GUI, press **Back** twice to return to the Default screen.

Automatically Running a Cleaning Cartridge

You can configure the library to automatically run the cleaning cartridge mode. If a tape drive needs cleaning, after it completes an unload operation, it sends a cleaning needed message to the library. This activates the automatic cleaning cycle provided a cleaning cartridge slot has been reserved with a cleaning tape in it.

To automatically run a cleaning cartridge using Auto Clean Mode:

1. **Reserve** one or more cleaning cartridge slots:
 - From the GUI, use **Menu > Library > Total Reserved Slots**.
 - From WebTLC, **Setup > Library Config > Reserved Slots**.

2. Install one or more **cleaning cartridges** into the reserved slots.
3. **Enable** automatic cleaning:
 - From the GUI, use **Menu > Library > Auto Clean Mode > Enabled**.
 - From WebTLC, use **Setup > Library Config > Auto Clean Mode > Enabled**.

Replacing a Cleaning Cartridge in a Reserved Slot

When a tape drive detects an expired or defective cleaning cartridge, a message appears on the front panel display. It is then necessary to replace the cleaning cartridge:

NOTE: Under normal conditions, a cleaning tape can be used up to 50 times.

1. Use the **Status** screen to verify that the cleaning cartridge has been unloaded from the tape drive.
If necessary, unload it using the Move Media menu option.
2. Move the expired cartridge to the **Mail Slot**.
3. Press **Mail Slot Access** to remove the cleaning cartridge.
4. Mark it "**EXPIRED**," and then properly dispose of it.
5. Place a **new cleaning cartridge** in the Mail Slot.
6. Use **Move Media** to move it to its proper place.



Partitioning can only be configured using WebTLC; it is not configurable from the GUI. At a minimum, each partition consists of one drive and one magazine. The magazines are considered separately from the drives and each partition starts with the first available drive magazine during configuration. Numbering of drives, Mail Slots, and regular media slots starts at 1 for each partition (P n where $n=1$ to 4).

Partitioning is a method in which cartridges, magazines, and LTO drives can be virtually autonomous for the convenience or use of the host or host software, thus creating “virtual libraries.” There can be a maximum of four partitions.

Partitioning allows different servers to use the same physical library while maintaining control of their allocated resources because, to the host, each partition looks like a separate tape library.



IMPORTANT: A Partitioning Feature Key must be entered before starting this process. If partitioning was purchased with the library, the key has already been entered and a label is located inside the left door. If partitioning was purchased later as an add-on, it can be activated using either WebTLC (Setup > Feature Key) or the library GUI (Menu > Maintenance > Enter Feature Key).

Overview

While the general partitioning procedure is the same for both the NEO 2000E and NEO 4000E, the availability of additional drives and magazines in the NEO 4000E offer more ways for it to be configured.

The **NEO 2000E** can be partitioned in just one way ([Figure 8-1](#)):

- 1:1 Partition – P1 uses the first magazine and P2 uses the other magazine.

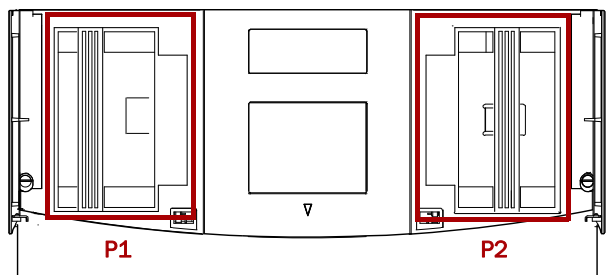


Figure 8-1: NEO 2000E Magazine Partition Options

The NEO 4000E partitioned in one of these seven ways (Figure 8-2):

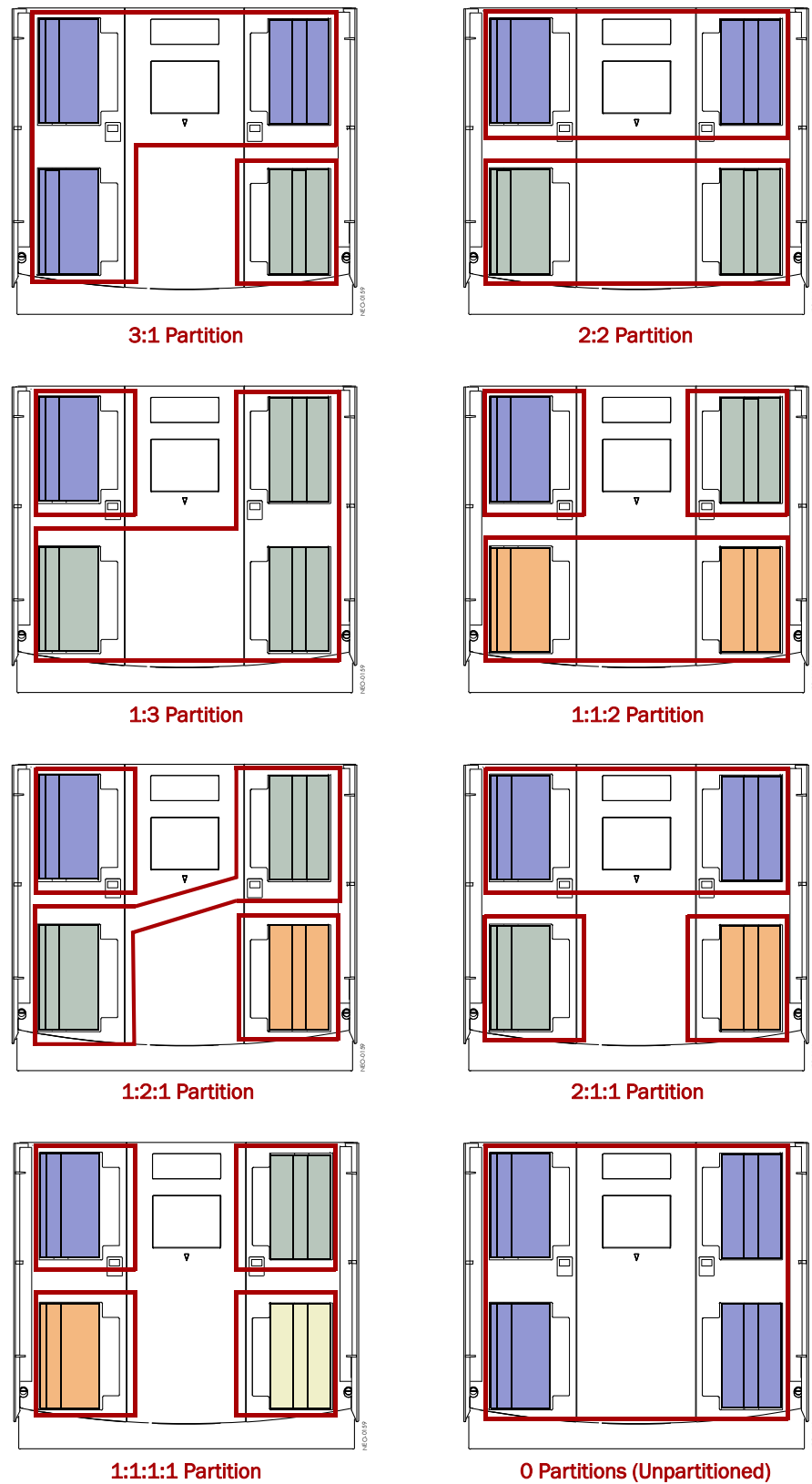


Figure 8-2: NEO 4000E Magazine Partition Options

- 3:1 Partition – P1 uses the first three magazines and P2 uses the last magazine.
- 2:2 Partition – P1 uses the first two magazines and P2 uses the last two magazines.
- 1:3 Partition – P1 uses the first magazine and P2 uses the last three magazines.
- 1:1:2 Partition – P1 uses the first magazine, P2 uses the second magazine, and P3 uses the last two magazines.
- 1:2:1 Partition – P1 uses the first magazine, P2 uses the next two magazines, and P3 uses the last magazine.
- 2:1:1 Partition – P1 uses the first two magazines, P2 uses the second magazine, and P3 uses the last magazines.
- 1:1:1:1 Partition – Each magazine is a separate partition.

Slot Options for Partitions

Mail Slot Options

Only the left magazines are configurable as Mail Slots using either the pivoting Mail Slot (1 slot) or the entire magazine (15 slots). A maximum of 15 Mail Slots is allowed per partition. The possible number of Mail Slots per partition depending on the configuration used:

NEO 2000E:

- 0 = No slots are configured as Mail Slots.
- 1 = The single Mail Slot is configured on the left magazine.

NEO 4000E:

- 0 = No slots are configured as Mail Slots.
- 1 = Either the Upper-Left or Lower-Left Mail Slot is configured.
- 15 = Either the entire Upper-Left or Lower-Left magazine is configured.

Table 8-1 shows the breakout of Mail Slot options based on partitions set:

Table 8-1: NEO 4000E Magazine Usage and Mail Slot Options

Config.	Mag 1	Mag 2	Mag 3	Mag 4	P1 Mail Slots	P2 Mail Slots	P3 Mail Slots	P4 Mail Slots
3:1	P1	P1	P1	P2	0, 1, or 15	0	—*	—
2:2	P1	P1	P2	P2	0, 1, or 15	0, 1, or 15	—	—
1:3	P1	P2	P2	P2	0 or 1	0, 1, or 15	—	—
1:1:2	P1	P2	P3	P3	0 or 1	0	0, 1, or 15	—
1:2:1	P1	P2	P2	P3	0 or 1	0, 1, or 15	0	—
2:1:1	P1	P1	P2	P3	0, 1, or 15	0 or 1	0	—
1:1:1:1	P1	P2	P3	P4	0 or 1	0	0 or 1	0
0					0, 1, or 15	—	—	—

*. Option not available.

Reserved Slots



CAUTION: Reserved slots must be configured **before** configuring any of the partitions. See “Automatically Running a Cleaning Cartridge” on page 7-3 for details.

Reserved slots are taken from the last magazine and set aside for cleaning tapes or as a slot-reduction method to meet host software requirements. These slots are not part of any partition but are accessible by **all** partitions. If all magazines are used in the partitions, the slot count of the last partition is reduced by number of reserved slots.

NOTE: Use care when setting up reserved slots in a NEO 2000E or a NEO 4000E with 3:1, 1:2:1, 2:1:1, or 1:1:1:1 partition configurations since the final partition consists of just a single magazine and only has 15 slots in the partition.

Drive Assignments



IMPORTANT: At least two drives must be installed in the library system to enable partitioning. Any drives (or magazines) that are NOT included in a partition are no longer accessible by the library while it is partitioned.

Each partition must have at least one of the library drives assigned to it. As such, the maximum number of partitions is equal to the total number of drives in a library.

NEO 2000E Partition Setup



IMPORTANT: A Partitioning Feature Key must be entered before starting this process. If partitioning was purchased with the library, the key has already been entered and a label is located inside the left door. If partitioning was purchased later as an add-on, it can be activated using either WebTLC (Setup > Feature Key) or the library GUI (Menu > Maintenance > Enter Feature Key).

NOTE: To cancel the partitioning any time before completion, click the Setup button.

To configure partitions on your library:

1. Login to **WebTLC** using Administrator (User Level 2) security.
2. Click **Setup > Configure Partitions**.

The first Partition 1 configuration screen is displayed (Figure 8-3).

Partition 1 Configuration	
Magazines and Drives Configuration	
Select Number of Magazines: 1 Magazine ▼	Select number of magazines for partition 1. (This includes all mail slots/mail magazines)
Number of Drives: 1 Drive ▼	Select number of drives for partition 1.
Continue Reset	

Figure 8-3: Partition 1 Initial Configuration Screen

3. Because of NEO 2000E partition minimums, accept the defaults by clicking **Continue**.

The second Partition 1 configuration screen is shown (Figure 8-4).

Current Partition Settings			
Partition 1		Partition 2	
Number of Magazines	1	Number of Magazines	1
Number of Mail Slots	0	Number of Mail Slots	0
Number of Drives	1	Number of Drives	1
Bridge Drive Number		Bridge Drive Number	

Partition 1 Configuration	
Mail Slots and Bridge Drive Configuration	
Mail Slots: 0 ▼	Select the number of left magazine slots to be used for import/export of media. Options available depend on the magazines selected for this partition.
Drive Used for Bridging: 1 ▼	Choose the drive that acts as the bridge to the host network.

Figure 8-4: Partition 1 Mail Slot and Bridge Drive Option Screen

4. Using the drop-down **menus**, choose the partition options:
- Add any available **Mail Slot** or **Mail Magazine** to the partition.
 - Select the **drive** that will be the partition bridge to the host network.

5. Click **Continue**.

The first Partition 2 configuration screen is displayed (Figure 8-5).

Current Partition Settings			
Partition 1		Partition 2	
Number of Magazines	1	Number of Magazines	1
Number of Mail Slots	0	Number of Mail Slots	0
Number of Drives	1	Number of Drives	1
Bridge Drive Number	1	Bridge Drive Number	

Partition 2 Configuration

Magazines and Drives Configuration

Select Number of Magazines: 1 Magazine ▼	Select number of magazines for partition 2. (This includes all mail slots/mail magazines)
Number of Drives: 1 Drive ▼	Select number of drives for partition 2.

Figure 8-5: Partition 2 Initial Configuration Screen

6. Because of NEO 2000E minimums, click **Continue** to accept the defaults.
The second Partition 2 Configuration screen is shown (Figure 8-6 on page 8-7).

Current Partition Settings

Partition 1		Partition 2	
Number of Magazines	1	Number of Magazines	1
Number of Mail Slots	0	Number of Mail Slots	0
Number of Drives	1	Number of Drives	1
Bridge Drive Number	1	Bridge Drive Number	

Partition 2 Configuration

Mail Slots and Bridge Drive Configuration

Mail Slots: 0	Select the number of left magazine slots to be used for import/export of media. Options available depend on the magazines selected for this partition.
Drive Used for Bridging: 2	Choose the drive that acts as the bridge to the host network.
CAUTION: Library goes offline and reboots once Submit is pressed.	
Submit Reset	

Figure 8-6: Second Partition 2 Configuration Screen

7. Using the drop-down **menus**:
- Add any available **Mail Slot** or Mail Magazine to Partition 2.
 - Select the **drive** that will be the partition bridge to the host network.
8. Click **Submit**.
The NEO 2000E automatically reboots.

 **IMPORTANT:** To change partition settings, you must disable partitions first to clear all old data before entering new partition data.

NEO 4000E Partition Setup

 **IMPORTANT:** A Partitioning Feature Key must be entered before starting this process. If partitioning was purchased with the library, the key has already been entered and a label is located inside the left door. If partitioning was purchased later as an add-on, it can be activated using either WebTLC (Setup > Feature Key) or the library GUI (Menu > Maintenance > Enter Feature Key).

NOTE: To cancel the partitioning any time before completion, click the Setup button.

To configure partitions on your **NEO 4000E** library:

1. Login to **WebTLC** using Administrator (User Level 2) security.
2. Click **Setup > Partition Configuration**.

The first Partition 1 configuration screen is displayed ([Figure 8-7](#)).

Partition 1 Configuration	
Magazines and Drives Configuration	
Select Number of Magazines: 1 Magazine ▼	Select number of magazines for partition 1. (This includes all mail slots/mail magazines)
Number of Drives: 1 Drive ▼	Select number of drives for partition 1.
Continue Reset	

Figure 8-7: First Partition Configuration Screen

3. Using the drop-down menus, enter the **options** for Partition 1:
 - Select 1 or more magazines.
 - Select 1 or more drives.
4. Click **Continue**.

The second Partition 1 configuration screen is displayed ([Figure 8-8](#)).

Current Partition Settings							
Partition 1		Partition 2		Partition 3		Partition 4	
Number of Magazines	1	Number of Magazines	3	Number of Magazines	0	Number of Magazines	0
Number of Mail Slots	0	Number of Mail Slots	0	Number of Mail Slots	0	Number of Mail Slots	0
Number of Drives	1	Number of Drives	3	Number of Drives	0	Number of Drives	0
Bridge Drive Number		Bridge Drive Number		Bridge Drive Number		Bridge Drive Number	

Partition 1 Configuration	
Mail Slots and Bridge Drive Configuration	
Mail Slots: 0 ▼	Select the number of left magazine slots to be used for import/export of media. Options available depend on the magazines selected for this partition.
Drive Used for Bridging: 1 ▼	Choose the drive that acts as the bridge to the host network.
Continue Reset	

Figure 8-8: Second Partition Configuration Screen

5. Using the drop-down **menus**, choose the remaining Partition 1 options:
 - Add any available **Mail Slot** or **Mail Magazine** to the partition.
 - Select the **drive** that will be the partition bridge to the host network.

6. Click the appropriate **button** to continue:

- If all the drives or all the magazines have been assigned to partitions, click **Submit** and continue with [Step 8](#).
- Otherwise, click **Continue**.

The first configuration screen for the next partition is displayed ([Figure 8-9](#)).

Current Partition Settings							
Partition 1		Partition 2		Partition 3		Partition 4	
Number of Magazines	1	Number of Magazines	3	Number of Magazines	0	Number of Magazines	0
Number of Mail Slots	1	Number of Mail Slots	0	Number of Mail Slots	0	Number of Mail Slots	0
Number of Drives	1	Number of Drives	3	Number of Drives	0	Number of Drives	0
Bridge Drive Number	1	Bridge Drive Number		Bridge Drive Number		Bridge Drive Number	

Partition 2 Configuration	
Magazines and Drives Configuration	
Select Number of Magazines: 1 Magazine ▼	Select number of magazines for partition 2. (This includes all mail slots/mail magazines)
Number of Drives: 1 Drive ▼	Select number of drives for partition 2.
Continue Reset	

Figure 8-9: First Configuration Screen for Second Partition

7. Repeat [Steps 3–6](#) for **each remaining partition**.

8. After configuring the final partition, click **Submit**.

The library automatically reboots. A screen ([Figure 8-10](#)) showing the new configuration is displayed for a minute before switching to the login screen.

Current Partition Settings					
Partition 1		Partition 2		Partition 3	
Number of Magazines	1	Number of Magazines	2	Number of Magazines	1
Number of Mail Slots	1	Number of Mail Slots	1	Number of Mail Slots	0
Number of Drives	1	Number of Drives	1	Number of Drives	1
Bridge Drive Number	1	Bridge Drive Number	2	Bridge Drive Number	3

A Login screen will automatically be displayed in 60 seconds

[Click this link to immediately display a Login screen.](#)

Figure 8-10: Partition Final Configuration Screen (NEO 4000E)



IMPORTANT: To change any partition settings, you must disable partitioning (using the Setup menu) first to clear all old data.

Displaying or Deleting Partitioning

Once a library has been configured as partitioned, the second Setup menu option changes to **Display Current Partitions and Disable Partition Mode** (Figure 8-11 on page 8-10).

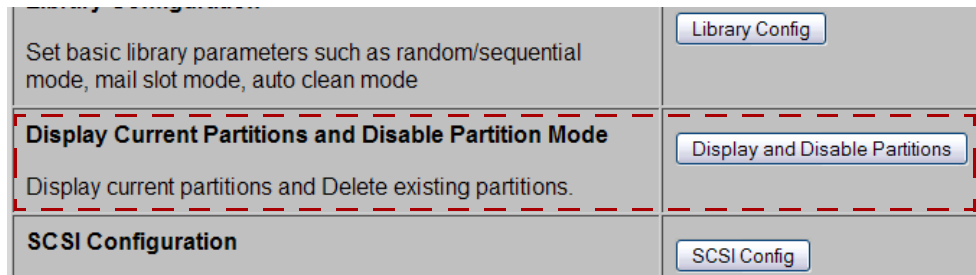


Figure 8-11: Partial Configuration Menu (Partitioning Configured)

To view the library's current partition configuration:

1. Log into **WebTLC** and click **Setup**.
The WebTLC Configuration menu is displayed.
2. Click **Display and Disable Partitions** (clicking OK at the offline message if it is displayed).
The Current Partition Settings screen is displayed (Figure 8-12).

Current Partition Settings					
Partition 1		Partition 2		Partition 3	
Number of Magazines	1	Number of Magazines	2	Number of Magazines	1
Number of Mail Slots	1	Number of Mail Slots	1	Number of Mail Slots	0
Number of Drives	1	Number of Drives	1	Number of Drives	1
Bridge Drive	Master, Drive 1	Bridge Drive	Master, Drive 2	Bridge Drive	Master, Drive 3

You are about to disable the partition mode. The library will reboot immediately after its configuration is updated.

Click Confirm to proceed with the requested operation, otherwise click Cancel.

Figure 8-12: Current Partitions Settings Screen (NEO 2000E)

3. Do **one** of the following:
 - To **keep** the partitions, click **Cancel**.
A cancelled message is shown. Click any menu button to continue.
 - To **remove** the current partition configuration, click **Confirm**.
Partitioning is removed from the library's configuration and the library is rebooted immediately.



Introduction

This chapter describes the error messages and descriptions that may be displayed when there is a possible malfunction, including:

- [Platform Problems](#)
- [Host Lock Out](#)
- [Error Recovery](#)
- [Fault Symptom Codes](#)

Platform Problems

An incorrect installation or configuration can cause platform problems. In this case, the library appears to be operating normally, but no data can be interchanged. You also might or might not get an error code on the touch screen Graphical User Interface (GUI). To identify an error caused by this type of problem, check your installation and configuration setup. See [Chapter 2, “Installation and Setup,”](#) for information on how to correctly install and configure the library.

General drive errors usually result from a miscommunication between the library and the tape drive or a mechanical malfunction within the library. Both platform problems and general drive errors display an error message and a Fault Symptom Code (FSC) on the touchscreen GUI. Use an FSC to report errors to your service provider, or in some cases, to determine a recovery procedure.

Host Lock Out

Access to the library's media and magazines can be locked by the backup software running on the host (for example, Symantec's Backup Exec). The library provides no touch screen GUI override for this condition. Exiting the host software also locks media access.

Tip: *If you are unable to access the library's magazine or media, check to see if the host backup software has blocked access to the NEO library.*

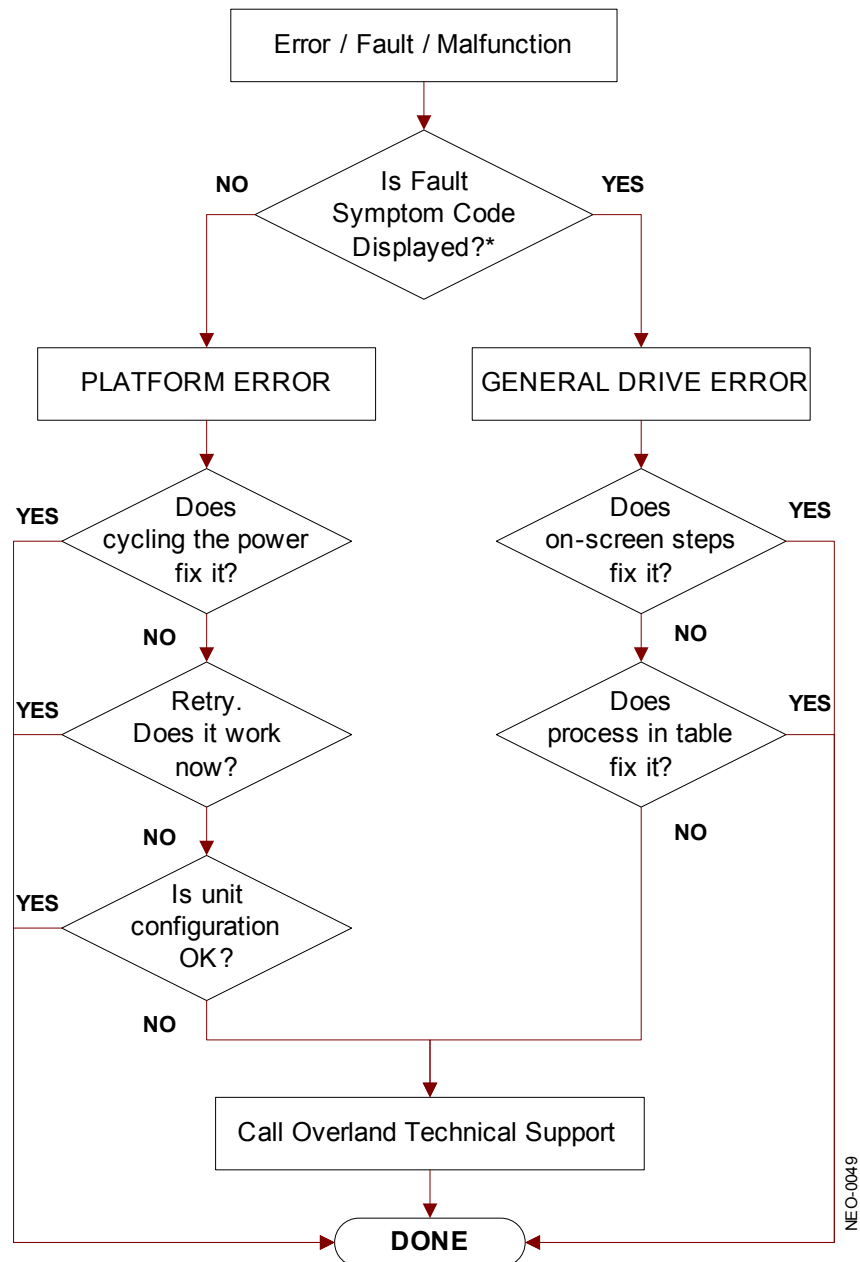
NOTE: *If in a locked status, media access can be restored by cycling the library power.*

Error Recovery

Figure 9-1 outlines the recommended steps for error recovery. You should follow this chart in all cases.

Error Recovery Procedures (ERPs) are listed in detail in Table 9-1 on page 9-3; Fault symptom codes are listed in Table 9-2 on page 9-3 along with their related ERPs.

Troubleshooting and Error Recovery



* For a CARTRIDGE ERROR an FSC may or may not be shown. If the cartridge won't eject, normal operation is impossible. Call Overland Technical Support.

Figure 9-1: Troubleshooting Flow Chart

Error Recovery Procedures

[Table 9-1](#) lists ERPs for errors reported on the touch screen GUI of the library. This list includes only those procedures that can be safely performed by an end user.

Table 9-1: Error Recovery Procedures

ERP Code	Procedure/Description
C	Cycle power to the library using the Power option on the GUI touch screen. Wait 30 seconds to power on again.
D	Turn off power to the library and inspect connectors and cables.
F	Invalid operation. Select parameters correctly and try again.
G	Call Technical Support.

Fault Symptom Codes

Fault symptom codes (FSCs) that appear on the touch screen GUI are described in the tables below. A descriptive message and instructions for clearing the fault accompany each FSC. If a fault persists, look up the FSC in [Table 9-2](#) to determine the error recovery procedure or to report it to your service provider.

Table 9-2: Fault Symptom Codes

Message	FSC	ERP	
NvRAM Update Error	0306	G	The non-volatile configuration area in flash memory could not be updated (programming error).
Bar Code Not Active Error	0501	D,G	The hardware could not detect a bar code reader.
OS Catastrophic Error	0901	G	Catastrophic Smx operating system error - task creation error, unexpected error.
OS Task Exit Error	0902	G	SmxNet (Ethernet, WebTLC) task error - server spawn error, TCP/IP fatal error.
Invalid Ethernet (MAC) Address	0A01	F	The library's Ethernet (MAC) address stored in the non-volatile configuration is not valid - the last 3 octets are either 0:0:0 or 255:255:255.
Invalid IP Subnet Mask (255.255.255.255)	0A02	F	The Ethernet subnet mask stored in the non-volatile configuration is not valid - 255.255.255.255.
SCSI Firmware Error	1001	D,G	Internal SCSI task processing error - unexpected state or hardware status.
SCSI FIFO Empty	1002	D,G	The SCSI controller data FIFO is empty but should contain more data bytes.
SCSI FIFO Error	1003	D,G	The SCSI controller data FIFO should be empty but still contains data bytes.
SCSI Gross Error	1004	C,D,G	The SCSI controller detected a gross error condition - invalid SCSI bus phase or DMA error.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Illegal SCSI Cnt Cmd	1005	C,D,G	Either an invalid command was sent to the SCSI controller, or the controller was not in the correct mode.
SCSI Invalid Element	1007	D,G	Internal SCSI task processing error - invalid element type was detected.
SCSI Invalid Int.	1009	D,G	The SCSI controller posted an invalid interrupt status.
Loader Not Ready	2004	C,G	Fail to fetch, stow, scan, move pass-through, or when loader detects invalid command, aborts command.
Door Open (status only)	2009	F	Door is forced open or door sensor failed.
Cart Unaccessible	200C	F	Indicates the tape is not ejected. Cartridge in drive is not accessible from changer.
Drive In Error	200D	C,G	A general drive error detected by control task.
No Magazine	200E	F	Cannot move, element not installed, from changer.
Removal Prevented	200F	F	Received medium prevent removal from the drive for a fetch.
Ctl. Firmware Error	2010	C,G	Internal inter-task processing error. Unexpected event. SMX send or receive error.
Move Command Failure	2081	C,G	Move command from / to drive slot failed, detected by control task.
Open Mail Slot Fault	2090	C,G	Door open sensor time-out detected when open door.
Open Left Door Fault	2091	C,G	Door open sensor time-out detected when open door.
Open Right Door Fault	2092	C,G	Door open sensor time-out detected when open door.
Open Doors Fault	2093		Door open sensor time-out detected when open door.
No IP Address Found	20a0	C,G	Router failed to get an IP address.
No IP Address Mode Fault	20a1	C,G	Router failed to detected static or IP address mode.
Unknown exchange for the async message	20b0	C,G	Unexpected exchange detected when process Messages.
Drive In Error	20c0	C,G	Control failed to set SCSI id.
Drive In Error	20c1	C,G	Control failed to installed drive.
Motor Fault Condition	3000	C,G	One of the motors has been disabled and could not be re-enabled.
Picker Tach Errors	3002	C,G	Picker Tach errors were detected when checking slots.
Bin Fetch Failure	3011	C,G	Loader failed to fetch a cartridge from a bin.
Drive Fetch Failure	3013	C,G	Loader failed to fetch a cartridge from a drive.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Drive Timeout Failure	3015	C,D,G	Loader detects unload command time-out.
Drive Status Failure	3016	C,D,G	Detected drive error from fetch or stow.
Drive Load Retry Failed	3018	C,G	LTO drive fail to load, detected in drive task.
Drive Communication Error	301B	C,D,G	Intertask send, receive failed.
Drive Get General Status Fail	301C	C,D,G	Drive communication failed.
Drive Get Status 3 Fail	301D	C,D,G	NOT USED
Undefined Config	3020	C,G	In loader, unexpected configuration, not a NEO 2000E or NEO 4000E.
Orphan Cartridge not stowed	3030	C,G	The loader could not successfully stow an orphan cartridge to a bin.
Chassis S/N Mismatch. Previous S/N retained	3031	G	The serial number scanned from the bar code label doesn't match the value stored in non-volatile memory.
Chassis S/N Character count is not correct	3032	G	A valid serial number bar code label could not be read.
Chassis S/N did not scan	3033	G	A valid serial number bar code label could not be read.
Chassis S/N save operation failed	3034	G	The serial number scanned from the bar code label could not be saved to non-volatile memory.
Motor Firmware Error	3040	C,G	The loader task detected an unexpected status and could not recover (internal target error).
Loader Received Invalid Command	3041	C,G	The loader task received an unexpected command and could not recover (internal target error).
Motor Firmware Error	3042	C,G	The loader task detected an unexpected status and could not recover (internal target error).
Missing Magazine	3050	F	No magazine installed for diagnostics to run.
No Cartridges In Library	3051	F	No cartridge available for diagnostics to run.
Too Many Cartridges	3052	F	Unable to run cart or drive cycle, loader is full with cartridges.
Need 1 Drive Minimum	3054	F	No available drive to run diagnostics.
Invalid Magazine Type	3057	F	Unsupported magazine type detected.
Magazine Type Change Not Handled	3058	F	Unsupported magazine type detected.
Drive Type Not Supported	3059	F	Unsupported drive type detected.
Diag Fetch, Drive not loaded	305b	F	No cartridge present for a fetch.
Diag Time-out waiting for drive empty, ready	305d	F	Fetch, time-out waiting for drive unload.
Invalid bin number	305f	F	Invalid bin number detected in diagnostics.
Zone Sequence Error	3060	C,G	Eject command time-out.
Drive 0 Eject Failed	3074	C,G	Eject command time-out.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Drive 1 Eject Fail	3075	C,D,G	Eject command time-out.
Drive 2 Eject Fail	3076	C,D,G	Eject command time-out.
Drive 3 Eject Fail	3077	C,D,G	Eject command time-out.
Diag get drive 0 status failed	3078	C,D,G	Failed to get drive status, communication error.
Diag get drive 1 status failed	3079	C,D,G	Failed to get drive status, communication error.
Diag get drive 2 status failed	307a	C,D,G	Failed to get drive status, communication error.
Diag get drive 3 status failed	307b	C,D,G	Failed to get drive status, communication error.
Unsupported Drive For Requested Operation	3084	F	Unsupported drive type.
No Retry On Fetch/Stow	308F	F	The loader retried an operation and retries were disabled.
Picker Jammed	3100	C,G	The picker jammed during loader initialization.
Picker Jammed 2	3102	C,G	The picker jammed during a bin stow operation.
Picker Jammed 3	3103	C,G	The picker jammed during a bin stow operation.
Picker Jammed 4	3104	C,G	The picker jammed during a bin stow operation.
Picker Jammed 5	3105	C,G	The picker jammed during a bin stow operation.
Picker Jammed 6	3106	C,G	The picker jammed during a bin stow operation.
Picker Jammed 7	3107	C,G	The picker jammed during a bin fetch operation.
Picker Jammed 8	3108	C,G	The picker jammed during a bin fetch operation.
Picker Jammed 11	310B	C,G	The picker jammed during a drive fetch operation.
Picker Jammed on Stow	310F	C,G	The picker jammed on a stow operation.
Picker Retries Exceeded 1	3111	C,G	Picker retries exceeded during a bin fetch operation.
Picker Retries Exceeded 3	3113	C,G	Picker retries exceeded during a bin stow operation.
Picker Retraction Error	3115	C,G	The picker did not retract during a bin check operation.
Shuttle Jammed	3200	C,G	The shuttle could not reach the target location.
Rotary Jammed	3300	C,G	The rotary track could not reach the target location.
Shuttle on Wrong Side Of The Rotary	3301	C,G	The zone indicators show that the shuttle is backwards on the rotary track during power-up initialization.
Passthrough Elevator Jammed	3400	C,G	The pass-through shuttle could not reach the target location.
Vertical Elevator Jammed	3500	C,G	The vertical elevator could not reach the target location (NEO 4000E only).
All Slots Empty	5011	F	There are no cartridges installed in any of the reserved cleaning slots.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Expired Clean'g Cart	5015	F	The cleaning operation failed due to an expired cleaning cartridge.
Not a Clean'g Cart	5016	F	The cleaning operation failed because the loaded cartridge is not a cleaning cartridge.
Move Command Fail	503B	F	A front panel move operation failed.
Clean Operation Timeout	503C	F	The cleaning operation failed because the drive timed out.
Drive Status Fail	503D	F	The cleaning operation failed because the library could not retrieve drive status.
Command response from unexpected source	7001	D,G	A command response was received from a task to which a command had not been sent.
Control command execution failed	7002	D,G	A command response opcode from the Control task was not anticipated or is un-identifiable.
Control response not matched to a known command	7003	D,G	A command response was received from the Control task, but the original command opcode could not be determined.
Loader response not matched to a known command	7004	D,G	A command response was received from the Loader task, but the original command opcode could not be determined.
Drive response not matched to a known command	7005	D,G	A command response was received from a Drive task, but the original command opcode could not be determined.
Flash response not matched to a known command	7006	D,G	A command response was received from the Flash task, but the original command opcode could not be determined.
Drive index on Update Status message was invalid	7007	C,D,G	An Update Drive Status message was received from a module, but the drive index was out of range.
The Drive response was not expected	7008	C,D,G	A command response was received from a Drive task to which a command had not been sent.
The opcode for a WORD message was unknown	7009	C,D,G	A WORD-sized message was received but the message opcode could not be identified.
The opcode for a DWORD message was unknown	700A	C,D,G	A DWORD-sized message was received but the message opcode could not be identified.
The button causing library to go offline was unknown	700B	C,D,G	A command to take the library offline was completed successfully, but the GUI button that initiated the action could not be identified.
Destination Xchg was Null	700C	C,G	Attempting to send a command to a task, but the argument exchange pointer was NULL.
Sending of a cmd failed	700D	C,G	An attempt to place a command on a task exchange failed.
Deactivating a drive that is not attached	700E	C,G	The Control task is indicating that a request to deactivate a drive failed because the drive is not attached.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Deactivation of a drive failed	700F	C,G	The Control task is indicating that a request to deactivate a drive failed; reason is not known.
Drive removal failed	7010	C,G	The Drive task is indicating that a request to power-down a drive failed; reason is not known.
Drive is Active failed	7012	C,G	The Drive task is indicating that a request to determine if a drive is executing a host command failed; reason is not known.
Control Com Unidentified	7013	C,G	During Hot Swap, a command response from the Control task could not be associated with any outstanding command.
Drive status update failed	7014	C,G	The Drive task is indicating that a request to determine the current state of a drive failed; reason is not known.
Loader command execution failed	7015	C,G	The Loader task is indicating that a command has failed to complete successfully.
Sequential command execution failed	7016	C,G	The Sequential task is indicating that a command has failed to complete successfully.
Destination Xchg for msg. was Null	7017	C,G	Attempting to send a message to a task, but the argument exchange pointer was NULL.
Bad src mod in peg msg	7018	C,G	A message was received from a remote module, but the module number was out of range.
A Peg message has a pointer to NULL	7019	C,G	Peg message wrapping a Null msg. partner
Xchg conversion failed	701A	C,G	Attempt to determine the module number containing the task that is returning a command response failed.
Invalid L-drive number to convert	701B	C,G	Attempt to send a command to a drive, but the logical drive number is out of range.
Invalid P-drive number to convert	701C	C,G	Attempt to send a command to a drive, but the physical drive number is out of range.
Invalid mod number to convert	701D	C,G	Attempt to send a command to a drive in a remote module, but the module number is out of range.
Unknown drive type	701E	C,G	Attempt to show detailed drive status of a drive whose type is unknown.
The SCSI response was not expected	701F	C,G	The command response from the SCSI task in a remote module was unexpected.
The Flash response was not expected	7020	C,G	The command response from the Flash task in a remote module was unexpected.
SCSI response not matched to a known command	7021	C,G	A command response was received from a SCSI task, but the original command opcode could not be determined.
Unexpected state after NonVolConfig cmd	7022	C,G	After successfully completing a NonVolConfigPut command, the current state of the save operation was unknown.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Unexpected state after SCSI mode cmd	7023	C,G	After successfully completing a ScsiUpdateModeParameters command, the current state of the save operation was unknown.
Unexpected state after SCSI init cmd	7024	C,G	After successfully completing a Scsilnitcommand, the current state of the save operation was unknown.
Drive Fan stalled	8002	C,D,G	The fan in the drive hot-swap shoe is either not installed or has stalled.
Drive load did not complete	8003	C,D,G	The drive failed to successfully load a tape.
Invalid drive was installed	8004	F	One or more installed drives are of a type either unknown or not supported in the current library personality.
LTO unmask drive failed	8005	F	The LTO drive unmask operation failed.
LTO mask drive failed	8006	F	The LTO drive mask operation failed.
LTO unload drive-in load retry) failed	8007	F	The LTO drive failed to unload a cartridge during a load retry operation.
Is Drive Unloaded Failed	8008	F	The LTO drive failed to return status when being polled for unloaded state.
Invalid Cleaning Media	8010		Invalid cleaning media.
Orphan cartridge recovery failed	9001	C,D,G	The master module could not successfully return an orphan cartridge to a slot location.
Master pass-through opto failed.	9003	C,D,G	The master module opto sensor was not detected during the power-up pass-through module inventory.
SMX send error	A001	C,G	An attempt to place a message on a task's exchange generated a kernel error.
SMX receive error	A002	C,G	An attempt to receive a message from a task's exchange generated a kernel error.
Comm free list empty	A003	C,G	An attempt to acquire a message from the free pool failed because the pool is empty.
Invalid comm. put attempt	A004	C,G	An attempt to place a message on a task's exchange failed because either the argument message pointer was NULL or the argument exchange pointer was NULL.
Invalid comm. get attempt	A005	C,G	An attempt to receive a message from a task's exchange failed because the argument exchange pointer was NULL.
Comm initialization error	A006	C,G	The Comm manager could not be initialized at power-up because system is out of memory.
Put of a NULL comm.	A007	C,G	An attempt to place a Comm block on a task's exchange failed the argument Comm block pointer was NULL.

Table 9-2: Fault Symptom Codes (Continued)

Message	FSC	ERP	
Msg contains no comm.	A008	C,G	A message obtained from the free pool did not contain a Comm block.
Comm return address is unknown	A009	C,G	An attempt to return a command response to the originating task failed because the originator could not be determined.
Bad Image CRC	F001	F	The uploaded firmware image has a bad CRC and is probably corrupted.
Flash erase sector failed	F002	F	One of the flash memory sectors could not be programmed.
Flash program sector failed	F003	C,G	One of the flash memory sectors could not be erased.
Bad flash CRC	F004	C,G	The firmware image programmed into flash memory has a bad CRC and is probably corrupted.
Flash exit error	F005	C,G	Internal flash task error.
Incompatible image	F006	F	The uploaded firmware image is not compatible with the library hardware, possibly an older firmware version.
Buffer allocation failed	F402	F	The flash task could not allocate a buffer area to hold the firmware image to be uploaded.

If an error message appears that is not included in [Table 9-2](#), write down the fault code number and follow the recovery procedure. If the same error occurs again, call your authorized service provider.



APPENDIX A

NEO E-Series Specifications

Hardware Specifications

NOTE: Refer to the current NEO Series data sheets for capacity and performance numbers.

Specification	NEO 2000E	NEO 4000E
Host SCSI Interface	LVD/SE	LVD/SE
Number of Drives	1–2	1–4
Number of Cartridges	30 (LTO)	60 (LTO)
Maximum Transfer Rate	Varies by Configuration (see web site)	Varies by Configuration (see web site)
Mount Time (into Drive)	<15 seconds*	<15 seconds*
Dismount Time (from Drive)	<15 seconds†	<15 seconds†
Mean Time Before Failure (MTBF)	>250,000 hours‡	>250,000 hours‡
Mean Cycles Between Failures (MCBF)	4,000,000 cartridge cycles	4,000,000 cartridge cycles
Design Life	7 yrs. @ 30% duty cycle	7 yrs. @ 30% duty cycle
Minimum Time To Repair (MTTR)	<10 min. (most FRU's)	<10 min. (most FRU's)
Height (nominal)	8.75 in. (22.25cm), 5U	17.50 in. (44.50cm), 10U
NOTE: Rear rack enclosure door (if used) must provide minimum of 6.0" additional clearance, from rear of chassis, for SCSI cables and fan housings.		
Width	16.7 in. (22.23cm)	16.7 in. (42.40cm)
Depth (with drive handles)	31.0 in. (78.74cm)	31.0 in. (78.74cm)
Weight (approximate)	Unpacked with 2 drives: 66.0 lbs. (30kg) Packaged: 99.0 lbs. (45kg)	Unpacked with 4 drives: 171.0 lbs. (78kg) Packaged: 199.0 lbs. (90kg)

* Excluding pass-through channel access.

† Excluding rewind/unload/eject time.

‡ Excluding power supply, tape drives, and cooling fans.

Environmental Specifications

Safety

NEO SERIES 2000E and 4000E Libraries comply with the following regulatory agency product safety specifications:

Agency	Standard
UL Listed Mark	UL 1950, Standard for Safety of Information Technology Equipment
CUL Mark (Canadian UL)	CAN/CSA-C22.2 No. 950, Standard for Safety of Information Technology Equipment
CE Marking (European Union)	Low Voltage Directive, 72/23/EEC, European Union
TÜV GS Mark (Germany)	EN60950, (IEC950) Standard for Safety of Information Technology Equipment, Third edition.

Electromagnetic Emissions

NEO SERIES 2000E and 4000E library modules comply with the following EMC compliance specifications:

Agency	Standard
FCC	US Std. 47 CFR, Part 15 Rules, Class A. Notation on Product
Industry Canada	Industry Canada Rules, ICES-003, Class A. Notation on product
CE Marking (European Union)	EMC Directive, 89/336/EEC Laws, relating to electromagnetic compatibility, European Union EN55022, Standard, RFI limits, Information Technology Equipment, Class A EN55024, Information Technology Equipment, Immunity.
VCCI	Class A per CISPR 22, Japan. VCCI statement on product
BSMI (BCIQ)	CNS: 13438, Taiwan. EMC warning and certificate number on product

Temperature, Humidity, and Altitude

NON-OPERATING - LONG TERM	Unpacked or Packed
Dry Bulb Temp	-40 °C to 60 °C
Temp Gradient	20 °C/hr. (across the range)
Temperature Shock	15 °C (over 2 min.)
Wet Bulb Temp	30 °C
Relative Humidity	5% to 95% (non-condensing)
Humidity Gradient	10%/hr
Altitude (sea level)	-1000 ft. to +10,000 ft.
TRANSIT - SHORT TERM	Packed 7 days
Dry Bulb Temp	-40 °C to 60 °C
Temp Gradient	25 °C/hr. (across the range)
Temperature Shock	15 °C (over 2 min.)
Wet Bulb Temp	30 °C
Relative Humidity	5% to 95% (non-condensing)
Altitude (sea level)	-1000 ft. to +10,000 ft.

Shock

OPERATING	Within Spec - No Damage
Peak Acceleration	1.5 G's
Duration	11 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
NON-OPERATING	Unpacked - No damage)
Peak Acceleration	2.5 G's
Duration	11 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
TRANSIT/STORAGE	Packed - No damage
Peak Acceleration	3.0 G's
Duration	30 ms
Waveshape	1/2 sine pulses
Application	X,Y,Z axes, repeat 3 times
PHYSICAL DROP TEST	Packaged - No damage
Drop Test Distance	12 inches (30.5 cm)
Application	Per ISTA (1 time)

Vibration

OPERATING	Within Spec - No Damage
Frequency Range	5-1000-5hz
Peak Acceleration	.25 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps per
NON-OPERATING	Unpacked - No damage)
Frequency Range	5-1000-5hz
Peak Acceleration	1.0 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps per
TRANSIT/STORAGE	Packed - No damage
Frequency Range	5-1000-5hz
Peak Acceleration	2.0 G's
Waveshape	Sinusoidal, 1 octave/min
Application	X,Y, Z axes, 2 sweeps per

Primary Power

Voltage Limits

The NEO SERIES 2000E and 4000E Libraries are capable of using any nominal AC voltage between 100 and 240VAC power, at 50 or 60 Hz. The machines are capable of powering up and operating without error from any voltage within the ranges specified.

Frequency Limits

NEO SERIES 2000E and 4000E Libraries are capable of operation at either 50Hz or 60Hz. The machines will automatically adjust for 50-60Hz primary power operation, without requiring user intervention or modification.

Power Requirements

A NEO SERIES 2000E Library, with two tape drives installed exhibits a nominal steady state AC power consumption of 192 watts (maximum = 240 watts).

A NEO SERIES 4000E Library, with four tape drives installed, exhibits a nominal steady state AC power consumption of 344 watts (maximum = 430 watts).

Current	
NEO SERIES 2000E	1.6 - 1.0A (120VAC - 240VAC)
NEO SERIES 4000E	3.5 - 1.8A (120VAC - 240VAC)

Cooling

Forced-air cooling is used to keep the tapes, drives, logic devices, motor amplifiers, motors, and power supplies below their maximum allowable temperatures at ambient extremes.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



Master Glossary & Acronym List

NOTE: This is a general Overland Storage glossary and acronym list. Not all items may be found in this document or be used by this product.

1000BASE-T

1000BASE-T (also known as IEEE 802.3ab) is a standard for gigabit Ethernet over copper wiring. It requires, at a minimum, Category 5 cable (the same as 100BASE-TX), but Category 5e (Category 5 enhanced) and Category 6 cable may also be used and are often recommended. 1000BASE-T requires all four pairs to be present and is far less tolerant of poorly installed wiring than 100BASE-TX.

Address

An address is a data structure or logical convention used to identify a unique entity, such as a particular process or network device.

ADI

Short for *Automation Drive Interface*. Media changer (automation) devices use a private communication link for monitoring and controlling removable medium devices (drives). The standard specifies a protocol for transporting commands, data, and status between automation devices and the drives.

ATA

Short for *Advanced Technology Attachment*. A standard interface for connecting storage devices to a PC.

Auto Balance

A feature that automatically balances preferred paths evenly among all available host ports and controller ports. Auto balancing spreads I/O load by utilizing as many host ports and controller ports as possible.

Back-end

Front-end and back-end are terms used to characterize program interfaces and services relative to the initial user, human or program, of these interfaces and services. A “front-end” application is one that application users interact with directly. A “back-end” application or program serves indirectly in support of the front-end services, usually by being closer to the required resource or having the capability to communicate with the required resource. The back-end application

may interact directly with the front-end or, perhaps more typically, is a program called from an intermediate program that mediates front-end and back-end activities.

Bar Code

The machine-readable representation of a product code. Bar codes are read by a scanner that passes over the code and registers the product code. The width of black lines and white spaces between varies. Combinations of lines and spaces represent characters. Overland uses 3-of-9 code (Code 39) where each character is represented by 9 bars, 3 of which are wide.

Bridging

Devices that connect and pass packets between two network segments that use different communications protocol.

Bus or Channel

A common physical path composed of wires or other media, across which signals are sent from one part of a computer to another. A channel is a means of transferring data between modules and adapters, or between an adapter and SCSI devices. A channel topology network consists of a single cable trunk that connects one workstation to the next in a daisy-chain configuration. All nodes share the same medium, and only one node can broadcast messages at a time.

CA

Short for *Certificate Authority*. A trusted third-party in a network that issues and manages security credentials.

Cat 5 Cable

Short for *Category 5*, it is network cabling that consists of four twisted pairs of copper wire terminated by 8P8C modular connectors. CAT 5 cabling supports frequencies up to 100 MHz and speeds up to 100 Mbps. It can be used for ATM, token ring, 10BASE-T, and 10BASE-T networking.

Cat 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard developed by the Electronics Industries Association as requested by the Computer Communications Industry Association in 1985.

Cat 6 Cable

Short for *Category 6*, it is network cabling that consists of four twisted pairs of copper wire terminated by 8P8C modular connectors made to higher standards that help reduce noise caused by crosstalk and system noise. The ANSI/TIA-568-B.2-1 specification states the cable may be made with 22 to 24 AWG gauge wire, so long as the cable meets the specified testing standards.

It is designed for Gigabit Ethernet that is backward compatible with the Category 5/5e and Category 3 cable standards. Cat 6 features more stringent specifications for crosstalk and system noise. The cable standard provides performance of up to 250 MHz and is suitable for 10BASE-T / 100BASE-TX and 1000BASE-T (Gigabit Ethernet).

DHCP

Short for *Dynamic Host Configuration Protocol*. A mechanism for assigning unique IP addresses to network nodes.

DNS

Short for *Domain Name Service*. A network service that translates domain names into IP addresses.

DSM

Short for *Device Specific Module*, it is a software module that allows RAID storage array hardware to use Microsoft's MPIO.

Expansion Slot

Area in a computer that accepts additional input/output boards to increase the capability of the computer.

F_port

A *Fabric* port within a Fibre Channel switch that provides a point-to-point link attachment to a single N_Port. F_Ports are intermediate ports in virtual point-to-point links between end ports, for example N_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch.

Failback

Failback occurs when a path with a higher priority than the currently active path is restored. In this case, I/O will “fail back” to the higher priority path once it is available again.

Failover

The ability to automatically substitute a working system or path for one which has failed.

Failover/Failback

A combination of Failover and Failback. When a preferred path becomes unavailable, another path is used to route I/O until the preferred path is restored. In this case I/O will “fail back” to the preferred path once it is available again.

FC-AL

Short for *Fibre Channel Arbitrated Loop*. An FC-AL is a Fibre Channel network in which up to 126 systems and devices are connected in a loop topology, with each transmitter connecting to the receiver of the device on its logical right. The Fibre Channel Arbitrated Loop protocol used for transmission is different from Fibre Channel switched and point-to-point protocols. Multiple FC-AL loops can be connected via a fabric switch to extend the network.

Fibre Channel

Fibre Channel (FC) is a gigabit-speed network technology which transports SCSI commands over Fibre Channel networks. Fibre Channel was primarily concerned with simplifying the connections and increasing distances, but later designers added the goals of connecting SCSI disk storage, providing higher speeds and far greater numbers of connected devices.

Firmware

Software stored in read-only memory (ROM) or programmable ROM (PROM). Firmware is often responsible for the behavior of a system when it is first switched on.

FL_port

A *Fabric Loop* port within a Fibre Channel switch that is capable of Fibre Channel Arbitrated Loop operations and is connected to one or more NL_Ports via a Fibre Channel Arbitrated Loop. An FL_Port becomes a shared entry point for public NL_Port devices to a Fibre Channel fabric. FL_Ports are intermediate ports in virtual point-to-point links between end ports that do not reside on the same loop, for example NL_Port to FL_Port to F_Port to N_Port through a single Fibre Channel fabric switch.

Front-end

See [Back-end](#).

Gigabit Ethernet

Also known as GigE or GbE, this Ethernet standard uses a one Gigahertz (1000 Hz) clock rate to move data.

HBA

Short for *Host Bus Adapter*. An HBA is an I/O adapter that sits between the host computer's bus and the Fibre Channel loop and manages the transfer of information between the two channels. In order to minimize the impact on host processor performance, the HBA performs many low-level interface functions automatically or with minimal processor involvement.

Hot Swap

The action of components being removed and replaced while the unit is running, with power to either the component or a device still connected to the unit. Not all components are hot swappable. Please read installation and maintenance instructions carefully.

IDE

Short for *Integrated Drive Electronics*. A standard interface for connecting storage devices to a PC

I/E Element

A configurable import/export slot or magazine to provide a means of exchanging tape media while the unit is still operating.

Internet

A global network of networks used to exchange information using the TCP/IP protocol. It allows for electronic mail and the accessing and retrieval of information from remote sources.

Initiator Device

A system component that originates an I/O command over an I/O bus or network. An initiator issues the commands; a *target* receives them.

An initiator normally runs on a host computer. It may be either a software driver or a hardware plug-in card, often called a Host Bus Adapter (HBA). A software initiator uses one of the computer's Ethernet ports for its physical connection, whereas the HBA will have its own dedicated port.

Software initiators are readily available for most host operating systems. Hardware initiators are not widely used, although they may be useful in very high performance applications or if 10 Gigabit Ethernet support is required.

IP

Short for *Internet Protocol*. IP specifies the format of packets and the addressing scheme.

IQN

Short for *iSCSI Qualified Name*. A name format used in the iSCSI protocol.

Initiators and targets have IP addresses, just like any other network entity. They are also identified using an iSCSI name, called the iSCSI Qualified Name (IQN). The IQN should be unique world-wide. It is made up of a number of components, specifying the date, identifying the vendor in reverse format, and then uniquely identifying the initiator or target. An example of an IQN is:

```
iqn.2001-04.com.example:storage:diskarray-sn-123456789
```

Since these IQNs are rather unwieldy, initiators and targets also use short, user friendly names (sometimes called alias names or just aliases).

iSCSI

Short for *Internet SCSI*. iSCSI is an IP-based storage networking standard for linking data storage facilities, developed by the Internet Engineering Task Force (IETF). By carrying SCSI commands over IP networks, iSCSI is used to facilitate data transfers over intranets and to manage storage over long distances. The iSCSI protocol is among the key technologies expected to help bring about rapid development of the storage area network (SAN) market, by increasing the capabilities and performance of storage data transmission. Because of the ubiquity of IP networks, iSCSI can be used to transmit data over local area networks (LANs), wide area networks (WANs), or the Internet and can enable location-independent data storage and retrieval.

iSNS Server

Short for *Internet Storage Name Service Server*. A protocol enabling the automatic discovery, configuration, and management of iSCSI devices on a TCP/IP network.

LAN

Short for *Local Area Network*. A network connecting computers in a relatively small area such as a building.

LED

Short for *Light-Emitting Diode*. An LED is a type of diode that emits light when current passes through it. Visible LEDs are used as indicator lights on electronic devices.

LTO

Short for *Linear Tape-Open*, a technology that was developed jointly by HP, IBM, and Certance (Seagate) as an open standards. It is ideally suited for backup, restore, and archive applications, and provides reliability in both stand-alone and automated environments. The tape cartridges go by the label "Ultrium."

- Ultrium generation 3 (LTO-3) cartridge – up to 800 GB capacity (2:1 compression) and an uncompressed transfer rate of 80 MB/s.
- Ultrium generation 4 (LTO-4) cartridge – up to 1.6 TB capacity (2:1 compression) and an uncompressed transfer rate of 120 MB/s.
- Ultrium generation 5 (LTO-5) cartridge – up to 3.0 TB capacity (2:1 compression) and an uncompressed transfer rate of 140 MB/s.

LUN

Short for *Logical Unit Number*. A SCSI or Fibre Channel device identifier. LUN is a subdivision of a SCSI target.

LVD

Short for *Low Voltage Differential*. LVD is a method of powering SCSI cables that will be formalized in the SCSI-3 specifications. LVD uses less power than the current differential drive (HVD), is less expensive, and allows for higher speeds such as those of Ultra-2 SCSI. LVD requires 3.3 volts (versus 5 volts for HVD).

MAC Address

Short for *Media Access Control address*, a hardware address that uniquely identifies each node of a network.

Mail Slot

See [I/E Element](#).

Mapping table

A table indexed by sequential LUN values, indicating the selected BUS:TARGET:LUN devices. Mapping tables are used by routers and bridges like the GEOi to perform Ethernet-to-SCSI pathing.

MD5 Algorithm

MD5 is a way to verify data integrity, and is much more reliable than checksum and many other commonly used methods.

MPIO

Short for *Multipath Input/Output*. A multipath solution built into Microsoft server-grade operating systems. It requires the DSM to work with RAID storage array hardware.

MTU

Short for *Maximum Transfer Unit*. It is the largest size packet or frame, specified in octets (eight-bit bytes), that can be sent in a packet- or frame-based network.

N_port

A *Node* port connects via a point-to-point link to either a single N_Port or a single F_Port. N_Ports handle creation, detection, and flow of message units to and from the connected systems. N_Ports are end ports in virtual point-to-point links through a fabric, for example N_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch.

NAS

Short for *Network Attached Storage*. Data storage connected to a network that provides network clients access to data using file-level protocols.

NAT

Short for *Network Address Translation*. A technique for passing network traffic through a router whereby one set of IP addresses is used on one side of the router and another set of addresses is used on the other side. This is done to avoid address conflicts and to increase the address space of the internal network.

Network Interface Card (NIC)

A board that provides network communication capabilities to and from a computer.

NDMP

Short for *Network Data Management Protocol*. A protocol standard used by some Network Attached Storage systems to provide an industry standard means to do backup and restores of the NAS system without the need for 3rd party agents to be installed on the NAS device. Also see NDMP.org for further details.

NL_port

A *Node Loop* port is capable of arbitrated loop functions and protocols. An NL_Port connects via an arbitrated loop to other NL_Port and at most a single FL_Port. NL_Ports handle creation, detection, and flow of message units to and from the connected systems. NL_Ports are end ports in virtual point-to-point links through a fabric, for example NL_Port to F_Port to F_Port to N_Port using a single Fibre Channel fabric switch. In the absence of a fabric switch FL_Port, NL_Ports can communicate with other NL_Ports in virtual point-to-point links through a FC-AL open loop circuit often through FC-AL (Arbitrated Loop) hub or loop switch devices.

Node Name

This is an eight-byte, 16-character hexadecimal number, uniquely identifying a single fibre device. It incorporates the World Wide Name and two additional bytes that are used to specify the format. In a host system with multiple FC ports, all adapters typically use the same Node Name, but unique Port Names.

NTFS

Short for *New Technology File System*. The standard file system used by Windows NT and later versions of the Windows operating system.

NTP

Short for *Network Time Protocol*. A protocol for synchronizing the system clocks of computers over a packet-switched network.

NVRAM

Abbreviation of *Non-Volatile Random Access Memory*, a type of memory that retains its contents when power is turned off.

OCP

Short for *Operator Control Panel*. The OCP touch screen is a 2.5" x 1.25" (6.4cm x 3.2cm) pressure-sensitive blue and light-gray screen that provides an easy way to directly communicate with the unit. It provides text and graphic messages and, through the use of virtual buttons and sliders, allows users to make changes to current settings.

Port Name

This is an eight-byte hexadecimal number, uniquely identifying a single host [HBA](#) port. It incorporates the World Wide Name and two additional bytes that are used to specify the format and indicate the port number.

Portal

A target's IP address together with its TCP port number.

Preferred Path

The preferred path is the default path. When the path selection policy is set to Failover/Failback, the preferred path is always used if it is available. If the preferred path fails, I/O switches to another path. If it is later restored, I/O switches back to the preferred path.

PTP

Short for *Point-to-Point*. PTP is the common mode of attachment to a single host. PTP is sometimes used to attach to a Fibre Channel switch for [SAN](#) connectivity.

RETMA

Short for *Radio-Electronics-Television Manufacturers' Association*. It is the common name given for a 19-inch distribution frame rack for mounting components.

RMU

Short for *Remote Management Utility*. It is an interface built into the unit that provides remote access to and configuration of the library through an Ethernet port. It hosts a dedicated, protected web site that can be accessed by a web browser using the IP address assigned.

Round Robin

The Round Robin path selection policy causes all healthy paths to be used for I/O. Paths are used in a round-robin order.

Router

A router is a device that enables connectivity between Ethernet network segments.

SAN

Short for *Storage Area Network*. Data storage connected to a network that provides network clients access to data using block level protocols. To the clients, the data storage devices appear local rather than remote. An iSCSI SAN is sometimes referred to as an IP-SAN.

SAS

Short for *Serial Attached SCSI*. It is a point-to-point serial protocol that replaces parallel SCSI bus technology (multidrop) and uses the standard SCSI command set. It has no termination issues, supports up to 16,384 devices (using expanders), and eliminates clock skew. It consists of an Initiator that originates device service requests, a Target containing logical units that receives device service requests, and a Service Delivery Subsystem that transmits information between the Initiator and the Target.

SCSI

Short for *Small Computer System Interface*. SCSI is an industry standard for connecting peripheral devices and their controllers to an initiator. Storage devices are daisy-chained together and connected to a host adapter. The host adapter provides a shared bus that attached peripherals use to pass data to and from the host system. Examples of devices attached to the adapter include disk drives, CD-ROM discs, optical disks, and tape drives. In theory, any SCSI device can be plugged into any SCSI controller.

SCSI addressing

Each device supported by a SCSI adapter has its own unique SCSI address, which dictates the device's priority when arbitrating for access to the SCSI bus. A SCSI address of 7 has the highest priority. For a fast/wide SCSI adapter that supports up to 16 devices, the next highest priority address is 6, then 5, 4, 3, 2, 1, 0, 15, 14, 13, 12, 11, 10, 9, and 8. The narrow SCSI adapter supports up to eight devices, including itself. The SCSI address 7 has the highest priority, followed by 6, 5, 4, 3, 2, 1, and 0.

SCSI bus

A SCSI bus provides a means of transferring data between SCSI devices. A SCSI bus is either an 8- or 16-bit bus that supports up to 8 or 16 devices, including itself. The bus can consist of any mix of initiators and targets, with the requirement that at least one initiator and one target must be present.

SCSI device

A SCSI device is a single unit on a SCSI bus that originates or services SCSI commands. A SCSI device is identified by a unique SCSI address. SCSI devices can act as initiators or targets.

SCSI port

A SCSI port is an opening at the back of a router that provides connection between the SCSI adapter and SCSI bus.

Session

When an initiator wants to establish a connection with a target, it establishes what is known as an iSCSI session. A session consists of one or more TCP/IP connections between an initiator and a target. Sessions are normally established (or re-established) automatically when the host computer starts up, although they also can be established (and broken) manually.

SMS

Short for *Short Message Service*. Is a means of sending short text messages to a mobile phone.

SMTP

Short for *Simple Mail Transfer Protocol*. A TCP/IP protocol used for sending and receiving email.

SSL

Short for *Secure Sockets Layer*. A protocol for managing the security of a message sent on the Internet.

Storage Area Network

See [SAN](#).

Tape Cartridge

A magnetically coated strip of plastic in a plastic housing on which data can be encoded. Storing data on tapes is considerably cheaper than storing data on disks. Tapes also have large storage capacities, ranging from a few hundred kilobytes to several gigabytes. They are generally used for long-term storage and backup, or for transporting large amounts of data. Tapes come in a variety of sizes and formats.

Tape Drive

A device, that reads data from and writes it onto a tape.

Target

A target is a device (peripheral) that responds to an operation requested by an initiator (host system). Although peripherals are generally targets, a peripheral may be required to act temporarily as an initiator for some commands (for example, SCSI COPY command).

Targets are embedded in iSCSI storage controllers. They are the software that makes the RAID storage available to host computers, making it appear just like any other sort of disk drive.

TCP/IP

Short for *Transmission Control Protocol/Internet Protocol*. The basic protocol used for data transmission over the Internet.

Telco

Short for *Telephone Company*. When used in reference to a rack, it refers to the two-posted, light-weight rack for center-mounted appliances.

Telnet

A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on a computer and connects it to a server on the network. You enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network. To start a Telnet session, you must log in to a server by entering a valid user name and password. Telnet is a common way to remotely control Web servers.

Terminator

A terminator refers to the electrical connection at each end of a SCSI bus. The terminator is composed of a set of resistors, or possibly other components. The function of a terminator is to provide a pull-up for open collector drivers on the bus, and also impedance matching to prevent signal reflections at the ends of the cable. SCSI buses require that a terminator be placed on the SCSI connector on the last SCSI peripheral. Data errors may occur in a SCSI bus that is not terminated.

TOE (TCP Offload Engine)

Short for *TCP Offload Engine*. TOE is a technology used in network interface cards to offload processing of the entire TCP/IP stack to the network controller. It is primarily used with high-speed network interfaces, such as gigabit Ethernet and 10 gigabit Ethernet, where processing overhead of the network stack becomes significant.

Topology

Logical layout of the parts of a computer system or network and their interconnections. There are two types of topology: physical and logical. The physical topology of a network refers to the configuration of cables, computers, and other peripherals. Logical topology is the method used to pass the information between workstations.

UDP

Short for *User Datagram Protocol*. A communications protocol for sending messages between computers in a network that uses the Internet Protocol (IP). UDP is an alternative to the Transmission Control Protocol but, unlike TCP, does not guarantee reliability or ordering of data packets.

USB (Universal Serial Bus) Port

A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer, and telephony devices.

VLAN

Short for *Virtual LAN*. It consists of a network of computers that behave as if they are connected to the same wire - even though they may actually be physically connected to different segments of a LAN.



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